DOMESTIC ENGINEERING

A Weekly Record of Progress in Plumbing, Heating, Ventilation and all Matters Pertaining to Domestic Sanitation

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Domestic Engineering says: The world may owe you a living, but it's well to first collect what's coming from the inhabitants.

COLLECTING UP THOSE OLD ACCOUNTS.

THERE are only a little more than two weeks left before 1912 will be a thing of the past. Christmas time, too, is close at hand. Have you the cash in the bank for Santa Claus? Or have your customers failed to "come across" in time to be of use for this festive occasion?

For years and years it has been the history that times "were tight" after the holidays. This might be taken to mean that money was plentiful before the annual shopping began.

Have your bills for this season's work all been rendered? And have you followed up the monthly statements with a request for prompt settlement?

It is one thing to sell a bill of goods or do a piece of work. It is quite another to get the money for it. It is easier to collect for an account when it is due than thirty days later. The longer it runs the harder its collection becomes.

Just before Christmas is a mighty good time to stir up action on those dilatory debtors. If there is any time of year when they should feel open-hearted, and should have the wherewithal to meet their claims, it is after a good fall business in every line, and a good crop season for the farmers.

You know of some plumbers and fitters who are proverbially behind in rendering invoices and statements. Then they wonder why they have to overdraw at the bank to meet the payroll, and why they never have enough ahead to take a cash discount.

Promptness in the financial end of a business is just as much appreciated by the customers as careful attention to their work. Nothing goes further toward compelling the respect of the buyers than business-like handling of settlements—and you can add to your reputation in no easier way than by making this a practice.

Yes, it takes time, and you get behind, and there is so much else more important. But this time of year in particular is the time that will give best results, and will aid you in building a better reputation for 1913.

Look up those old accounts—get after them vigorously—that money is yours only after you have collected it. You have, of course, added to your expense of doing business a fair amount for bad accounts, and all you can save of this appropriation is velvet. The velvet's what you're looking for, anyway, isn't it?

Then go to it, these next two weeks, and get in the money.

YOUR PART IN THE NEW YEAR'S NUMBER.

THE trade will look to the New Year's number for a report of business conditions in your locality during the year just closing, and the outlook for 1913. Have you sent in your letter?

Just how has business in 1912 compared with that in 1911? Has it been more profitable to you? Or have you been able to make more net profit from the same volume of business?

What local conditions in your city have helped business, or hindered it? Have you had a scarcity of labor, or have other matters prevented the expansion you desired?

A good photograph of yourself, or of your building or your showroom, will prove of interest. Send it in.

Let us have your report by return mail, so that it will be in time for the New Year's Number.

Ventilation of New Theatre, New York City

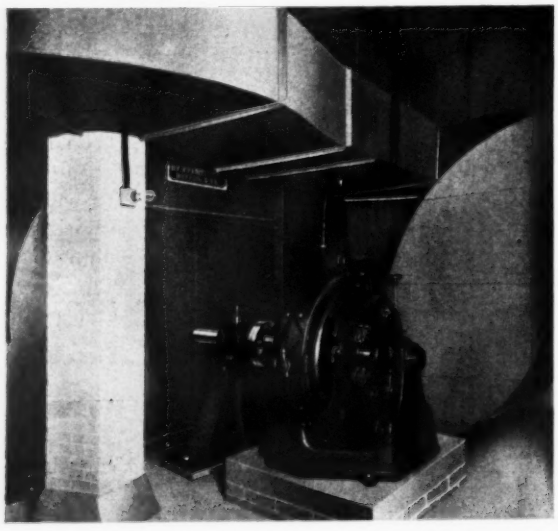
This Installation is of Special Interest at This Time, When Theatre Ventilation is Being so Much Discussed

THE New Theatre, New York City, which is herewith illustrated, is situated on Central Park West and extends from Sixty-second to Sixty-third street. It has a depth on the side streets of 225 feet.

The main structure is seven stories high, the extension occupied mainly by the loft above the stage, being eleven stories.

The orchestra floor is divided into three sections containing about 600 seats. There are twenty-three subscription boxes located above the auditorium level, which contain six seats each. The foyer stalls containing five rows of seats are located above them; and above these stalls is located the first balcony, which has a very large seating capacity. The second balcony contains nine rows of seats. The entire seating capacity of the house is 2,200.

The ventilating apparatus installed provides for tempered fresh air supply for the auditorium, the more important rooms in connection with the auditorium, the stage and the basement buffet rooms; as well as exhaust



View of Fan Ducts and Motor.

ventilation for the above mentioned rooms. Exhaust ventilation is also provided for the inside rooms, the kitchen department and the various toilets in the building.

The ventilating apparatus is so arranged that the air supply and exhaust for the auditorium can be reversed. This is accomplished in the following manner:

When the reversing damper is set in its regular position the fresh air supply is conveyed through the reversing apparatus to the air supply registers, and the exhaust air is at the same time passed from the exhaust registers through the reversing apparatus in its transit to the exhauster when the damper is set in the reversed position, the air supply is conveyed to the registers (ordinarily exhaust registers), and the exhaust air drawn from the registers (ordinarily supply registers) and passed through the reversing apparatus in its transit to the exhauster.

The apparatus consists of a reinforced galvanized iron casing with a metal covered swinging damper.

Three Sturtevant steel plate centrifugal fans are installed. One of these fans, which has a blastwheel 12 ft. in diameter by 7 feet wide, furnishes tempered air to the air supply outlets and registers in the auditorium, the foyer, and in the circulations and rooms in connection with the auditorium.

The second fan, having a blast wheel 9 feet in diameter by 4 feet 6 inches wide, provides fresh air to the registers and screens for the stage, stage pit, etc., and with air supply registers in the basement buffet, toilet, etc.

The other fan, which has a blast wheel of 11 feet in diameter by 5 feet 6 inches wide, is employed in exhausting air in connection with the exhaust openings in the orchestra chairs and auditorium, in the foyer, and in the circulations and rooms in connection with the auditorium.

The air discharge shaft from the auditorium exhauster and the vent shaft from the basement are provided with No. 20 gage galvanized iron extensions, which are connected with the tops of the plastered shafts below the roof level, and run up to and connected with the discharge caps.

In addition there is a system of tempered air ducts and flues connecting with the air supply registers in the inside rooms in the stage portion, etc., arranged for connection with an 8 foot blower to be installed at a future date.

The fan wheels have curved blades and are enclosed in full steel-plate housings, designed with inlets, and outlets to meet the space conditions, and are braced to prevent vibration. The parts of the fan housings extending below the floor level are made water-tight.

Two sets of tempering coils are provided in connection with the 12 foot blower for the auditorium. These have an aggregate of 3,450 square feet of heating surface. Each coil is made up of six two-row sections 12 feet wide by 6 feet high, making the coils 12 rows deep.

A set of tempering coils is also used in connection with the 9 foot blower for the stage, etc. It contains 1,882 square feet of heating surface made up of six two-row sections, 18 feet wide by 8 feet high, making the coil 12 rows deep.

The sections of the tempering coils are made up of 1¼ inch pipe screwed into separate cast iron headers on steam and return ends and arranged to secure positive circulation of steam. The headers of each section are 6 inches wide. The sections are spaced so as to provide ample room for connections and valves.

The inside sections of the tempering coils are controlled by hot air thermostats placed in the tempered air ducts, automatically operating the diaphragm valves on steam and return pipes as required to maintain the temperature of the air in the ducts at the desired degree.

The two outside sections of the tempering coils are controlled by cold air thermostats located in the fresh air chambers, automatically shutting off the diaphragm valves on steam and return pipes when the incoming air rises to a certain degree, and opening the valves when the outside temperature drops below this degree, thus securing a continuous heating effect from these sections when required.

The tempering coils are encased in jackets of No. 10 gage steel plate. The tempering coil casings extend from the fresh air chamber to the blower inlets. The jackets are made removable and are stiffened and braced to prevent vibration, all ends connected with the brick work, being fitted with angle-iron flanges.

The fresh air inlets in connection with the tempering coils are provided with rolling shutters covering the entire opening and built of No. 18 gage galvanized iron. Each shutter is inclosed in a copper hood.

In addition to the fans already described five Blackman disc fans are provided. Two of these fans, which are employed for exhausting air from the stage, are each 54 inches in diameter and are located in the roof space above the stage. Another of these fans is employed for exhausting air from the inside rooms in the stage portion on the north side of the building, the stage pit and basement buffet rooms, etc. It is 54 inches in diameter and is located in the fan room on the sixth story.

The fourth disc fan is employed for exhausting air from the inside rooms in the stage portion on the south side of the building, the stage pit, etc. It is 42 inches in diameter and is located in the fan room on the eleventh story.

The last fan of this series is used to exhaust the air from the kitchen and rooms in connection with the kitchen. It is 54 inches in diameter and is located in the fan room on the eleventh story.

The air discharges from the disc fans, the extension from the auditorium discharge shaft and the extension from the basement vent shaft are capped with protecting hoods made of No. 20 galvanized iron; except the hood for the discharge from the 54-inch exhaust fan located in the sixth story, which is built of 24 ounce copper.

These fans have No. 20 gage galvanized iron air discharges starting from the fan frame and running up to the proper height.

All of the fans mentioned are run by slow speed electric motors of the C. & C. Electric Co's. manufacture.

All of the ductwork is built of the best bloom galvanized iron of the following gages:

Ducts and flues having one dimension of 48 inches and over are No. 20 gage, braced with angleiron.

Ducts 30 inches and over, No. 20 gage.

Ducts 12 inches and over, No 22 gage.

Smaller ducts are No. 24 gage.

Except the exhaust flues and ducts from the kitchen hoods, which are built of No. 14 gage steel plate.

The ducts are provided with slip joints and are suspended by galvanized iron hangers, being braced where required.

The inside radius of all curves on ducts and flues is not less than the width of same. Vertical exhaust and supply flues have full size bends for connection with the horizontal ducts.

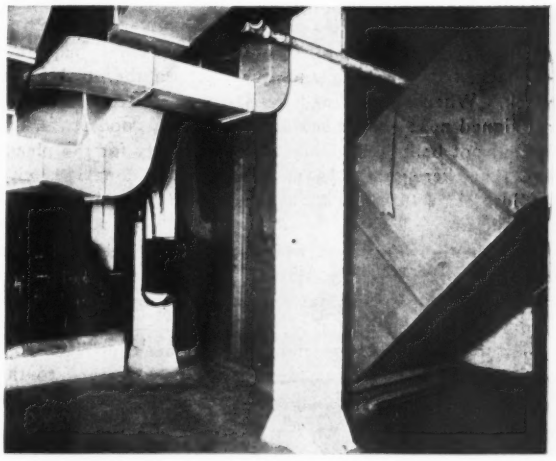
A four inch diameter Sturtevant galvanized iron blast gate of the slide pattern is provided in each individual connection from the orchestra chairs.

Dampers with quadrants indicating their position are provided in branch ducts leading to and from other individual supply and exhaust flues. Dampers are also placed in the main ducts, as are also deflectors and doors where required.

Generally, the top and bottom exhaust registers are respectively near the ceiling and floor.

Fusible dampers are provided in the ducts, made of sheet metal ⅛ inch thick, set in steel frames hung on eye-bolts from the masonry walls and making air tight connections with the ducts. Each frame has an angle-iron tongue inside of it for receiving the damper and two catches at bottom for locking when closed. The ducts are riveted to steel frames. The spindle of the dampers are located about two-thirds from the bottom of the damper and each damper is held in an open position by two discs of metal, soldered with an alloy, which will melt and release damper at temperature of about 160 degrees F.

The theatre was designed by Carrere & Hastings, architects, New York. Nygren, Tenny & Ohmes, New York, prepared the heating and ventilating plans and specifications.



Another View of Fan and Ventilator Ducts.

THE CARPET.

By Harry Gale Nye.

Few men realize their utter helplessness in this world until they try to beat a carpet to suit the "women folks." This may be a pastoral remark, but it is nothing so simple to the man who is making the dust fly. The ordinary carpet whacker was not made for a man. Just at the zenith of his muscular development the handle comes off and the wire strikes his wife in the eye. While she is bathing this in cold water, the strong man steps backward into a pail of suds the maid has set carelessly by while she tries to encourage him. Having been duly rescued, he gets a tough oaken pole from the wood pile and antagonizes the long-suffering floor covering in a way that bids fair to fray its very warp and woof. When there is no more dust in it, his wife comes out and, looking critically at the limp texture, says determinedly:

"A little more on the under side, please."

Then the husband recalls Bob Burdette's "Romance of the Carpet."

"And she smiled as she leaned on her busy mop,
"And said she would tell him when to stop."

She seldom tells him, however. He usually stops of sheer exhaustion, which you who have never beaten a carpet cannot truly appreciate. There is only one thing worse than beating a carpet. That is putting up a stove. James Montgomery Bailey, "The Danbury Newsman," has a corner on this story. It won't do to trespass—but perhaps you know from your own experience about the mixed stove pipe.

Anybody who can successfully beat a carpet and put up a stove in one day has a great future before him.

The Business of the Modern Sanitarian

By John Rowe

THE ordinary business men, mentioned in a previous article, who assumed the sanitarian business, making it a success, when ignorant of the very peculiar workings of the craft, were level-headed business men who had plenty of push, a good sense of system and fine selling ability.

One of them with whom the writer was well acquainted packed up his grip and went out on the road for a week. When he returned he had some fifteen contracts all signed up, about $7,000 in all, and at a good profit, for he did not believe in doing business simply for the pleasure that there might be in it. This was done in a city of less than 10,000, with a good farming community to back it up.

Another business man who took over a plumbing business that had literally starved out the journeyman attempting to run it, started in with one journeyman plumber and steamfitter to help him. In less than three years he was running eight journeymen and had sold out his dry goods store, devoting all of his time to the plumbing business he had built up in the town of some 5,000 where he had located.

The question was asked these two men, "What was the first thing that you did after you got started in your new line of business?" and each one replied, "I got all of the books, catalogues and trade papers I could lay my hands upon and read up." That certainly is an eye-opener for the average master. When these men had finished their "reading up" they were, to all intents and purposes, better equipped to conduct the business than men who had followed the calling for many years, granting that they remembered only one-tenth of what they read.

Of one hundred average master fitters or plumbers ask this question, "What trade papers or books do you read?" and ninety will answer, "I don't have time to read any." The writer has often wondered how they put in the hours filling up the time. There are not so many businesses in our craft that take all of the master's time for 313 days in the year. If these ninety who had no time to read had answered exactly, they would probably have said, "I've been chasing so many jobs that I have no time for anything else.

Observe that it is "chasing" and not selling jobs that many of these busy (?) men are at while they have no time to acquire information.

This presents a hasty view of a first class sanitarian shop located almost anywhere in the United States. There are some things left out. The driver and delivery wagon, for instance. That was not mentioned because many shops of this character have dispensed with the old way and hire the goods delivered by the trucking companies, or have a power truck and driver of their own.

This mere mentioning and placing of the different branches of a shop into something like logical order shows that it has developed from a shop into a first class business, and also that the man who aspires to manage has got to be something more than the old style "boss." Not only will he have to have all the virtues of the old style foreman, but he must have grown into the modern way of conducting a business and be on the job every moment of the day.

The sanitarian business naturally divides itself something as follows:

- The business.
  - 1. Help.
    - Laborers.
    - Journeymen.
    - Apprentices.
    - Clerk.
    - Estimator.
    - Salesman.
    - Owner.
  - 2. Stock.
    - Exhibition.
    - Plumbing.
    - Heating.
  - 3. Office Outfit.
    - Suitable blanks.
    - Proper index system.
    - Trade papers.
    - Authoritative books.
    - Office furniture.
    - Proper lighting.
  - 4. Buildings
    - Shop.
    - Store rooms.
    - Office.
  - 5. Present knowledge.
  - 6. The unknown.
  - 7. Running the business.

There must be an accurate method of handling the "help." A first class business of the character outlined will employ anywhere from twenty to over one hundred employes and have a weekly pay roll running into four figures, besides all the other expenses.

In the smaller towns and cities where there is no jobbing house it will be necessary for the owner to have something of a stock and a show room entirely for exhibition purposes. The day of selling almost entirely from catalogs seems to have gone by for the plumber, although the mail order houses make a big hit by selling from the catalog. They seem to have acquired the confidence of the people that they reach, a thing that the plumber does not always possess, and because he simply will not talk enough on paper. In addition, there is the plumbing stock and the stock for heating purposes. A first class shop has found out by experience just how to properly balance the stocks with the demand and their bank balance. Beginners will have to ascertain this as they progress. Relative to the amounts it would be wise to make haste slowly in loading up.

The office is the place where the plans, the policy and the push for business is developed. One has to have modern tools to do business with in this day and age. A corner of the shop with a hand made desk no longer suffices. If the room and the necessaries are not there the business will soon be hopelessly tangled up and perhaps never thoroughly straightened out. Many times it is necessary to do estimating at night. For this reason the office, or perhaps the estimating room, should be properly lighted. One would think that this thought would occur to the owner, but in many cases the writer has observed such rooms very poorly lighted, so that it was almost impossible to do any drawing there after dark. A large business of this kind may have the office, the shop and the store rooms located in different parts of the town and telephone connections. Such a state having come

from the rapid growth of the business. It is far better, though, if possible, to have the whole assortment at one place.

Generally speaking, the present knowledge has come largely from hard knocks and the result of the pressure of other interests than those of the workman himself. The journeyman and master have ever been extremely slow about adopting improvements or business principles until the past five years, when a wave of awakening seems to have spread all over the country.

Part of this is due to the immense amount of business deliberately "swiped" by the mail order houses and some is due to the better class of goods that have to be installed. Also, city ordinances have played a large part in the game. The contractor simply HAD TO WAKE up or lose out. We are just beginning. I had intended to speak of the "unknown" in this article, but space will not permit, and shall treat that topic in another paper. Although the present methods seem to meet the needs of the day, after a certain fashion, it is hardly to be doubted but what they will be greatly improved in the next few years. Compare the plumbing of today with that of tweny-five years ago. Then look forward twenty-five years, and what do you see?

Sanitation Covers More Than Medicine

THE sanitary engineer must be more than a physician, says Prof. George C. Whipple, of Harvard, in Engineering News. Medical training is only one of the items in his preparation for his career. He is bound, Professor Whipple thinks, to be a commanding figure in the doings of the world during the coming centuries, and this writer commends the profession to young men who are looking out for opportunities to do service to their fellows and at the same time to win respect and admiration. Says Professor Whipple, who holds the chair of sanitary engineering in his university:

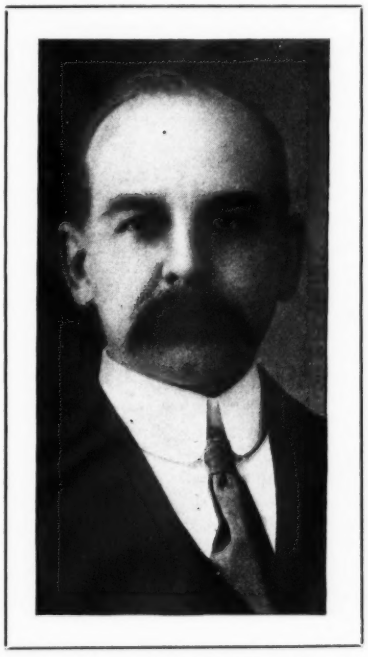


Photo by Courtesy of "Literary Digest."

Prof. George C. Whipple, of Harvard University.

"Medical training alone does not fit men for this service. The problem of curing disease is quite different from the problem of preventing disease. The former deals with human beings as individuals; the latter considers them as units of a mass. The prevention of disease involves mathematics; statistics relating to the sick and the dead must be constantly and daily used in order to show what forces of disease are at work, and where the attack is next likely to be made. It involves engineering; for the public must be protected against impure air and infected water, and streets must be cleaned and garbage removed. It involves chemistry; for the public must be protected against the sale of adulterated and poisonous foods. It involves bacteriology; for infectious diseases must be diagnosed and antitoxins provided. It involves law; for the health officer must be able not only to discern evils but to eradicate them. But the duties of a health officer should not be entirely repressive and punitive. There is a positive side. His department should be an educational force in the community, constantly instructing the people in the arts of hygiene and in the principles of right living. Many believe that this educational function of the health officer is one of the most important of his duties.

"In the pursuit of the elements of sanitary science, the sanitary engineer, the sanitary specialist, and the health officer meet on common ground, and to a certain extent their education may be appropriately conducted together. But for the most part their work, although mutually helpful, lies apart, and their education in the main should follow separate channels. The health officer needs his special work in the study and control of diseases, in the use of vital statistics, and in other subjects that tend to fit him for an executive. The sanitary specialist needs extensive laboratory experience and practice in research, while the engineer needs to work with his surveying instruments, his drafting board, and the other tools of his profession. . . .

"Sanitary engineering is yet in its youth. Its practice is far from being crystallized. More than other branches of civil engineering, therefore, it demands research. Half a million dollars has been spent in this direction by our States and municipalities, but the research carried on by our universities has not been as great as might be expected. Additions to university funds for this purpose would bring important results.

"Our country is justly proud of the work of the United States government in preventing disease at the Isthmus of Panama, and in showing how the tropics may be safely inhabited by white men, but this work has been very expensive. The next step in advance is for the sanitary engineer to accomplish the same task at greatly less cost. This step is absolutely necessary. Research in sanitary economy is, therefore, one of the directions in which money may be well spent during the next decade."

Public School Heating and Ventilation

Public School No. 46, New York City, Is an Example of Modern Methods of Heating and Ventilation in Such Buildings

THE subject of school houses is always an interesting one, as their design and construction is appreciated to be of paramount importance when compared with any other type of building. Large numbers of children are daily cared for inside their portals, and their sanitary features and air supply not only have their immediate effect on the ability of the scholars but may produce bad results of lifelong duration unless properly taken care of.

The plumbing of Public School No. 46 of New York City was very completely described in the issue of "Domestic Engineering" of November 9th, and, while of a first-class nature, it does not by far run into the complication that the heating and ventilation work attains.

The work covered in the following description was designed by Mr. C. B. J. Snyder, Supt. of School Buildings, together with Mr. F. G. McCann, Chief of the Heating and Ventilating Division. The work was installed by Frank Dobson & Co., Inc., of New York.

The General Layout.

In the first place the heating and ventilating work in connection with this school consists of warming and ventilating the class rooms, corridors, playrooms, medical inspector's room and offices in the first story by means of a double duct plenum system, while the assembly room is heated and ventilated by a single duct plenum system. During the school sessions the boilers are run under medium high pressure to operate the blowers, steam engines, pumps, etc., and the exhaust from these machines is used at low pressure to supply the direct and indirect radiation, any insufficiency being made up with live steam supplied from the high pressure mains by means of an 8-in. reducing valve. Under these conditions the water of condensation is returned to the boilers by means of steam traps, receiving tank, pump governor and pumps constituting an open tank return system. At all other times the boilers are run under low pressure, supplying steam direct to the heating system only and having the returns brought back to the boilers direct, forming a common gravity return system.

Steam Supply.

The steam supply equipment installed consists of four horizontal tubular steam boilers, 72 in. in diameter by 14 ft. long, each containing 127 tubes 3 in. in ter by 14 ft. long, each containing 127 tubes 3 in. in diameter. These boilers have 6-in. equalizing cutlets, 4-in. return inlets, and 12-in. steam outlets, on top of which are placed 12 x 8-in. reducing ells. Each boiler has a damper regulator and a 3½-in. safety valve set for 80 pounds blow-off; on the low pressure side of the reducing valve which supplies the heating mains is located a 3-in. safety valve set for 10 lbs. blow and a 1-in. safety valve set at 100 lbs. is placed on the boiler feed pump discharge pipe. Each boiler has a 10-in. dial steam gage graduated from 1 to 100 pounds and 8-in. dial gages from 1 to 20 pounds are installed for the pressure reducing valve and back pressure valve.

An injector with a 2-in. steam and 2½-in. overflow connection is installed and also a receiving tank 3 x 5 ft. with two 5-in. inlets, one of which is plugged.

Steam pumps are provided for boiler feed purposes and for pumping water into the house tank.

The blow-off tank is approximately 36 in. in diameter by 48 in. long, made of ¼-in. flange steel, has a 2-in. vapor pipe and is set in iron cradles. To this tank is connected the blow-off from the boilers, the reliefs from the receiving tank, etc., with a by-pass connection, supplied with gate valves, around the tank.

A combined muffler and grease extractor is provided of vertical horizontal type with an 8-in. exhaust inlet, 10-in. exhaust outlet and two 2-in. drip connections. This is also provided with a valved by-pass and overflow.

The pipe unless otherwise mentioned is of standard full weight genuine wrought iron pipe, that which is buried in the ground being galvanized.

On the high pressure lines the fittings are of extra heavy cast iron designed for a working pressure of 200 pounds; all pipe lines 10-in. or over in size are flanged, the joints having double corrugated copper gaskets laid up with red lead. The high pressure lines under 10-in. in size are made up with extra heavy screwed fittings except in cases of flanged valves as mentioned later. All nipples are of extra heavy pipe. On the medium and low pressure lines in general the fittings are standard and screwed, and flanged joints are made as few as possible.

The high pressure valves above 5-in. in size and both medium and high pressure valves over 8-in. are flanged, while all other valves are of the screw type. Those 2-in. and under are made of the best steam metal and over 2-in. are of iron body with brass or bronze mountings. No globe or angle valves are used except for pneumatic control lines.

The receiving tank is 3 x 5 ft. and is constructed of ¼-in. flange steel with riveted joints, manhole, etc. Pipe connections to tank are made by means of riveted flanges. Besides the return connections, there is a 4-in. pump suction outlet located 6 in. above the bottom of the tank, a 2-in. vapor pipe outlet located in top of shell, a 1½-in. drawoff outlet in the bottom and a 5-in. inlet riveted onto the head 10½ in. above the center for clean drips. A gage glass is also provided. This tank is installed at such a height as to seal the pump valves. The 2-in. vapor pipe is valved and connected to the vapor pipe of the blow-off tank and a ½-in. cold water line with a stop and check valve is connected into this vapor line with 2 foot water glass having self-closing cocks.

The boiler feed pumps are set on brick piers capped with 3-in. fine axed blue stone and have copper drip pans 1½-in. deep, with wired edges. These pumps are connected up in such a manner that either pump can take water from either the street main or receiving tank and deliver it to any or all of the boilers. The steam supply to each pump is hand controlled when taking water from the street mains, and by a hand valve and pump governor when taking water from the receiving tank.

Direct Heating.

The radiators installed are of the cast iron sectional type, and consist of sections which are 25-in., 32-in. and

39-in. in height, each radiator of more than 14 sections being provided with three leg sections. Every radiator, and each group of wall radiators, has two bosses on the return end 3½ in. on centers and tapped ⅛ in. pipe tap for air valves. Where the radiators are set on asphalt floors such as in the playrooms, halls, etc., cast iron plates 2½ in. wide, 1 in. thick and long enough to accommodate the spread of the radiator legs are placed beneath the feet to keep the radiators from sinking. These plates are set flush with the asphalt and extend continuously from the front to the rear leg.

The coils used consist of 1¼-in. pipe with headers and close return bends, erected in stands or straps made of 2 x ¼-in. iron with cast iron bases. The wall coils above the floor are fastened to the walls by ½-in. expansion bolts. Each coil ten feet long or over has a center stand with a ⅜-in. bolt under each pipe. The end straps are placed about 6 in. from the ends of the coils with the top and bottom pipes and each pair formed by a return bend supported by a ⅜-in. bolt.

The double coils have a steam and return valve on each section and where coils are set on asphalt floors cast iron plates with bosses are used to steady the coil foot.

Automatic air valves are installed on each radiator and coil and on each bare riser used for heating the toilets.

On the one pipe connection to radiators the pipe is pitched so as to slope sharply away from the radiator and is of the following sizes:

1¼-in. to each radiator 45 square feet or less.

1½-in. to each radiator of 45 square feet to 80 square feet.

2-in. to each radiator of 80 square feet or over.

In the two-pipe work both the steam and return connections are run with a slight pitch in the direction of the steam flow, the pipe sizes being as follows:

1 in. to all radiators of 60 square feet or less.

1¼ in. to all radiators of 61 square feet or over.

Each steam riser is connected to the return main by a 1-in. drip pipe. In general all coils are put on the two-pipe system with ¾-in. or 1-in. return drops, which are extended down to the basement, where they are connected into 1¼-in. or 1½-in. headers, which are in turn run through valves of similar size into the return main.

To heat the toilet rooms a 2-in. steam riser is utilized with an air valve as before mentioned. These risers are protected by wire screen enclosures running the full height and made of No. 10 half hard wire of 1-in. mesh set in ¾-in. steel channel frames, and fastened in place about 2 in. clear of the pipe.

Each riser valve has a brass tag with the word "Riser" stamped on it and the number of the valve, the tags being chained to the valve wheels.

Each radiator and coil not having thermostatic control is provided with a gate valve on the steam connection if on one pipe, or with a valve on both steam and return connections if on two pipes.

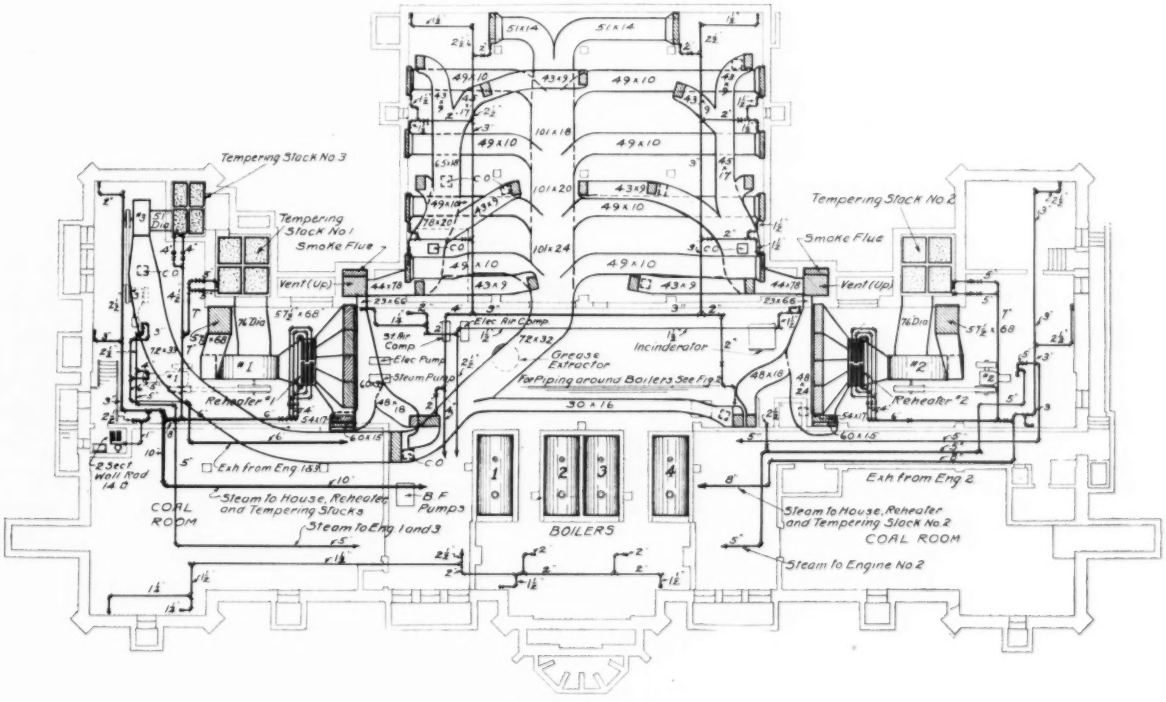


Fig. 1. Cellar Plan.

Each set of steam and return risers pass through the same opening in the flow and (except for mosaic floors) are enclosed in No. 24 gage galvanized steel sleeves flanged and secured in place with a ⅞-in. clearance around the pipes. Where the risers or radiator connections pass through asphalt or concrete floors they run in sleeves extending 3 in. below the ceiling and 3 in. above the floor line, the exposed tops of the sleeves being covered with brass caps which fit to the pipes. The pipes passing through wood floors have floor plates of No. 22 galvanized steel covering the openings and those running through mosaic floors have nickel-plated cast brass floor plates, being enclosed in wrought iron pipe sleeves which are finished flush with the floor line. The sleeves on all covered pipes are made large enough to permit the extension of the pipe cover through the sleeve.

The risers in the finished portions of the cellar and basement and for all stories above are enclosed in watertight casings of No. 24 gage steel from floor to ceiling. These casings are put on after the covering has been put in place and are finished off at the upper ends with ⅛-in. wire fitting closely around the floor sleeves with slip joints for expansion.

All radiators in the class rooms, the offices of the District Superintendent, Principal and Assistant Principal, Chief Clerk and Medical Inspector, have front screens of No. 24 galvanized steel with the sides and ends wired with No. 6 B. & S. gage half hard wire. These screens extend from 1 in. above the top of the base to 1 in. under

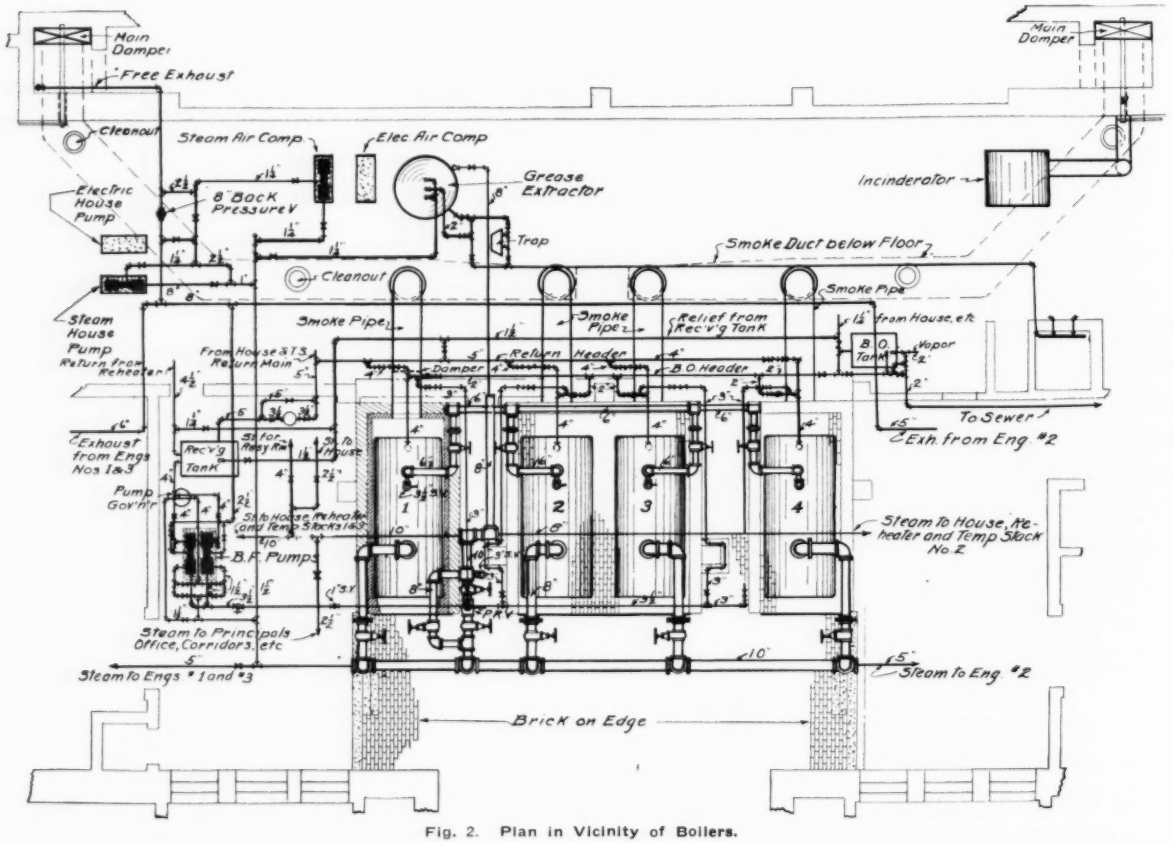


Fig. 2. Plan in Vicinity of Boilers.

the ends of the top and about 2 in. around the ends, except for wall radiators, where they are made the full size of radiator sections. They are made to stand 2 in. out from the radiators, being supported by cast iron separators and ⅜-in. bolts, which are screwed into tapped bosses especially provided for this purpose on the radiators themselves. Where these screens come within 18 in. of the scholars' seats, they are made double with a 1-in. air space between the sheets.

For coils the screens are made up in sections of about 3 ft. 5 in. in length, with slip joints for expansion, and located 2 in. out from the coils, being supported by clamps on each end.

Indirect Heating and Ventilating.

Figure 1 shows the cellar plan of the school and illustrates the method of drawing the fresh air down through fresh air inlets across the tempering stacks, through the fans, and then the distribution to the various flues and risers. The details of the piping connections to the boilers is not shown here in order not to be confused with the ducts, but is shown in larger scale in Figure 2. The basement plan, which includes the playrooms and assembly room, is given in Figure 3 and shows the various floor outlets in the assembly and elsewhere, as well as the ducts continuing up to the first floor level. In Figure 4 is shown the first floor plan, which may be considered as reasonably typical of those other floors above. The space on the upper floors is of course not quite so much occupied by the duct system as the first floor, but the general scheme is quite similar.

The ducts and flues from the fresh air intakes to the blowers, heaters, reheaters, etc., up to the bases of the vertical flues (except the heater housings) are constructed of the best bloom galvanized sheet steel of the following gages:

Longest dimension, 36 in. or less, 24 gage.
Longest dimension, 36 to 54 in., 22 gage.
Longest dimension, 54 to 72 in., 20 gage.
Longest dimension, 72 in. or over, 18 gage.

A complete layout of the cellar ducts, and location of fans, intakes, etc., is shown in Figure 1.

For all other ducts and flues up to the roof line the metal is of No. 24 gage, while for vent flues above the roof line and for ventilator heads the gage used is No. 22.

Heat for the indirect system is furnished by heaters erected in groups and of the pipe coil type, the connections being as follows for groups of—

175 square feet or less, 2-in. steam and 1¼-in. return.

175 square feet to 240 square feet, 2-in. steam and 1½-in. return.

240 square feet to 350 square feet, 2½-in. steam and 2-in. return.

350 square feet or over, 3-in. steam and 2½-in. return.

The return connections from each group have a swing check and a gate valve located below the water line and have separate steam and return control valves for each section of the group.

At points necessary adjustable multiple blade deflectors are installed, made of No. 24 galvanized steel with the ends wired with No. 6 B. & S. gage half hard wire. The dampers are of No. 16 gage sheets with reinforced edges

quarter housed double discharge blowers, with a 9-ft. wheel, and are run at about 160 revolutions per minute, while No. 3 blower is also three-quarter housed, but has an angular up-discharge with a 6-ft. wheel, and is run at approximately 202 revolutions per minute.

These blowers are mounted on 4 x 12-in. dressed oak plank frames, which are securely bolted to the foundations. Each blower discharge (where there are double discharges), has an adjustable damper with a ¾-in. rod and ½-in. set screw and an iron quadrant on each side of the blower housing. All blowers were built special for this job and are run by three engines, of which No. 1 and No. 2 are 12 x 14-in. and 9 horsepower, while No. 3

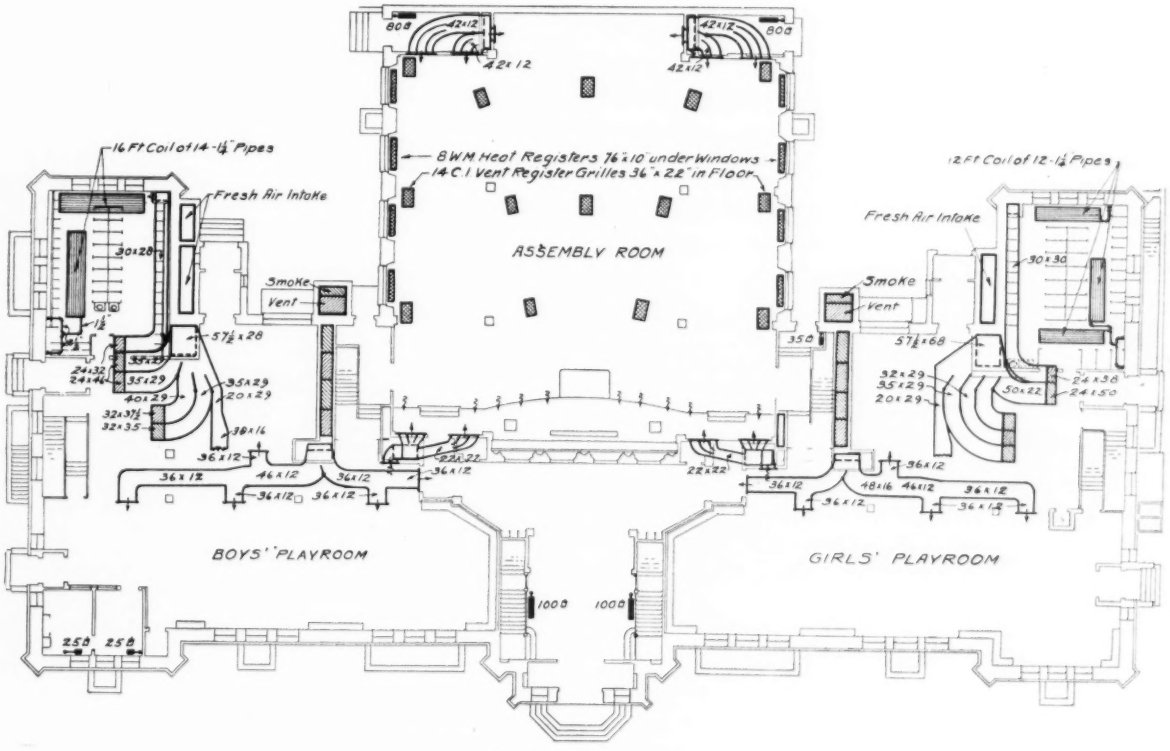


Fig. 3. Basement Plan.

for single thick, while the pan dampers are of No. 20 gage nailed with galvanized nails to wood frames. The set dampers are provided with clamps on the smaller ducts and quadrants on the larger ones.

Each damper except those operated in the rooms controlled thereby has a neatly stenciled brass tag about 1½-in. x 3-in. in size screwed onto the woodwork near the damper or riveted on to ducts where exposed, which show the number of the room or the story controlled by the damper. On testing the system out the set dampers and deflectors were adjusted so that the amount of air delivered through each opening when measured by an anemometer was in no case less than called for nor exceeded the quantity desired by over 10 per cent.

Over the vent uptakes are installed galvanized sheet metal hoods or ventilators which are equipped with dampers supported in special bearings with oilers.

The register faces are without valves or wheel slots bars and frames when set in the floors.

The blowers are three in number, located as shown on the cellar plan, Figure 1. Blowers Nos. 1 and 2 are three-

is an 8 x 10-in. of 1½ horsepower.

Covering.

With few exceptions the steam, exhaust, and return pipes throughout the entire building are covered as follows:

The pipes in nests or groups in the cellar and basement, boiler, engine and blower rooms, are covered with 3 layers air cell covering, then a thickness of rosin-sized sheathing or 1/16-in. asbestos paper and an 8-oz. canvas jacket sewed on. The pipes in nests or groups above the cellar and encased in the galvanized casings before mentioned are similarly covered, but without the canvas jacket. The pipes that are permanently concealed behind built-in bookcases, closets, etc., are covered in a manner similar to those in the basement and cellar. The other pipes, valves, etc., are covered with moulded sectional covering 1 in. thick, on top of which is placed rosin-sized paper and 8-oz. canvas or by moulded cement and canvas. All air cell covering is made up in layers ¼ in. thick, which are applied with broken joints and wired.

The smoke pipes, exposed portions of the boilers, receiving tank, etc., are covered with ½-in. mesh No. 19 steel screen, kept 1 in. away from the surface by galvanized V ribs placed 8 in. on centers, over which are placed 1-in thick asbestos blocks, with a ½-in. finish of two layers of cement.

Snow Melter.

The heating and ventilating work also covered the installation of two snow melting devices which are arranged as follows:

A header is formed at the side of the boilers which is connected into an injector discharge main, and a 1¼-in. delivery pipe is run from this header through the building walls to the outside air. A valve is placed on this delivery pipe close to the header and a steam cock and hose coupling attached to the outside end. For purposes of melting the snow 250 ft. of 1-in. steam hose are furnished, the hose being made up in 50-ft. lengths.

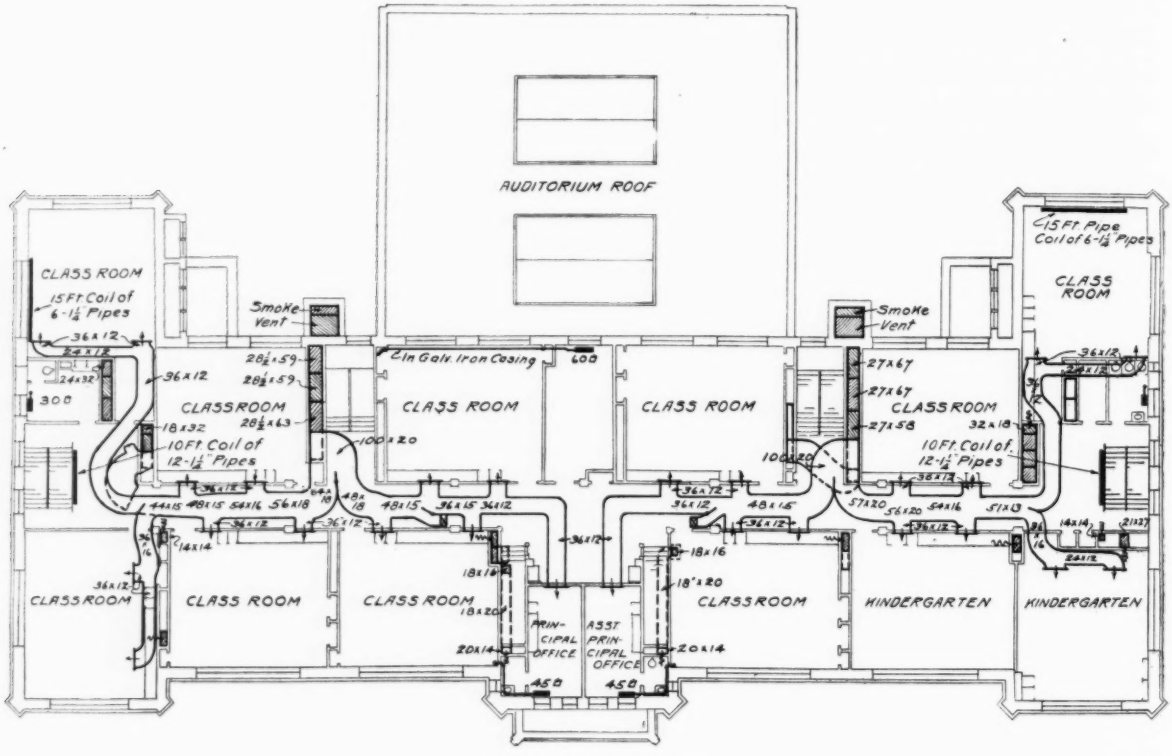


Fig. 4. First Floor Plan.

Thermostatic Control System.

The thermostatic control system is operated by compressed air, which is furnished by both steam and electric-driven air compressors. The electric air compressor has a modern motor, wound for 220 volts, single phase, and the compressor is of the double-acting type, with 4 x4-in. cylinders, having a capacity of five cubic feet of air per minute. There are two 4 x 3⅝ x 6-in. steam air compressors, having a capacity of four cubic feet per minute, and operated with a pressure of 20 lbs. of steam. These compressors maintain a 15-lb. pressure on the thermostatic air lines. A high pressure air storage tank is installed which is approximately 18 in. in diameter and 72 in. long. A low pressure drip air tank is placed on the header supplying air lines to thermostats, etc., and is formed by a section of 3-in. galvanized iron pipe 12 in. long, capped at the bottom by a ½ x 3-in. reducer and capped at the top with a 3-in. galvanized twin ell bushed eccentric to ½-in. on both outlets. The tank is provided with a heavy pattern blow-out plug cock, and a ½-in. nickel-plated pop safety valve (set to blow at 35 lbs..) and a 40-lb. gage. Other air gages are provided on the drip tank, on the compressors and at the boiler gage board.

The suction air line is run from the compressors to the outer air, being ½ in. in size and terminating in a noiseless strainer head. The discharge line from the compressors is also ½ in. in size and is run over to the high-pressure storage tank, where a globe valve is located. From the high-pressure tank a ½-in. line is run over to the low-pressure drip tank, with a globe valve and a pressure-reducing valve, which cuts the pressure down to 15 lbs. From the outlet of the small low-pressure drip tank a header is run, to which are connected all thermostatic air lines, each with a valve close to the header. The air line mains for the thermostats are made ½ in. in size, with ⅜-in. branches to the air line risers. The air line to the central control board is of ⅜ in., while those running to motor cleaning cocks described farther on are ¼ in. throughout. All the pipe and fittings are of galvanized iron and all pipe was cut with a hack saw in erecting instead of the ordinary pipe-cutter. The valves are in general of the screwed type and are of the best steam metal up to 2 in. in size; above this they are iron body, brass or bronze mounted.

The diaphragm valves are of heavy pattern, with composition discs and have diaphragms of sufficient size to keep the valves shut steam tight against 10 lbs. of steam pressure when operated by 10 lbs. of air.

The thermostatic-pneumatic valves are placed on each steam connection to each division of every heater, including all tempering coils and reheaters. Also on the steam supply to each radiator and coil in the rooms having positive acting thermostatic control, which consist of the principal's assistants' offices in the second, third and fourth stories together with the assembly room.

The sizes of the thermostatic valves on the direct radiator and coil connections are as follows:

For One-Pipe System.	For Two-Pipe System.
1¼-in. up to 45 square feet surface.	1-in. up to 60 square feet surface.
1½-in. from 45 to 80 square feet surface.	1¼-in. up to 60 to 110 square feet surface.
2-in. above 80 square feet.	1½-in. above 110 square feet surface.

Similar valves are installed on the returns from all the above equipped pipe radiators these being ¾ in. in all cases.

The mixing dampers which are installed at various points in the ducts, are moved by individual pneumatic motors operated by air pressure controlled by the thermostat located in the section of the structure supplied by the duct.

Automatic temperature regulators are provided for the class-rooms, offices, medical inspector's rooms, auditoriums, gymnasium, bathrooms, corridors etc. there being a total of 70 such provided. They are set to operate between 65 and 67 degrees. The ones used in connection with the direct radiation system are what are known as "positive-acting" that is, they move the diaphragm valves so as to be wide open or tight shut while those controlling the mixing dampers are of the "controlled-graduated type" which move the dampers gradually from point to point as necessary to maintain uniform temperature.

The duct thermostats are arranged to cut off the steam supply from the indirect radiation when the duct air reaches a given temperature and there is also an outdoor thermostat which cuts out the steam supply from the first division of each heating coil when the outside temperature reaches 38 degrees Fahr. or over. There are sixteen attic ventilating dampers which are controlled by diaphragm attachments, connected by means of suitable compressed air lines, to three-way cocks, on a cock-board located in the engineer's room. These various three-way cocks are tagged to indicate the various dampers which they control. There are also three groups of risers, which are equipped with diaphragm valves, operated in a similar manner, by three-way cocks from the engineer's office.

The air blast for motor cleaning before mentioned consists of ¼-in. heavy brass union gage cocks at each motor, placed about 4 ft. above the floor and to which is attached a 12-ft. length of ⅜-in. white-lined, red-rubber hose. The other end of the hose is tipped with a piece of ⅛-in. galvanized wrought iron pipe 8 in. long, securely fastened to the hose with an air-tight joint.

HOME SUPPLIED WITH PURE AIR FROM CAVES

The famous Luray caverns in Virginia, which were recently acquired by T. C. Northcott, a retired heating and plumbing engineer, have been put to a novel use by their new owner. The caves, as is well known, says The Technical World Magazine, honeycomb the ground for three miles or more beneath the eminence known as Cave Hill.

Ordinarily the possession of a limestone cave, no matter how beautiful, would seem to have little to do with science and health. But cave air is practically germless, as well as of uniform temperature; it is also as dry as air may be which is constantly circulating over limestone.

Combining the above factors, Mr. Northcott piped the air from the caverns into his home by means of a huge air duct and suction fans; in short, getting his ventilating, and to a certain extent his heating, absolutely free. It is hard to imagine a more complete harnessing of nature to the service of any one man. In the first place, he is placed in touch with an abundant supply of fresh, dry, germless air at a constant temperature of 54 and 56 degrees.

If the statements of scientists are true, then in escaping the onslaughts of germs Mr. Northcott should live to a ripe old age. Recognizing this fact, he never opens the windows of his house, except for cleaning purposes, with the result that catarrh and colds are unknown. The quality of the air is such that the claim is made that a day or two in the house will cure the most obstinate case of la grippe.

Furthermore, since this air comes into the house at an average temperature of 55 degrees the year round, heating in winter and cooling in summer, are results attained with the minimum of effort and expense. Mr. Northcott has arranged heating coils outside of the house, so that he avoids the contamination due to the fumes of combustion.

Since it is only necessary to raise the natural temperature of the air some ten degrees for comfort, it is easily seen that the necessary heating may be accomplished much more economically than would be possible under normal conditions, where an increase of thirty or forty degrees would be necessary. Incidentally, outside air varies in temperature of humidity, whereas that of the caverns does not. Result: No hurried trips to put the drafts on the furnace or to dampen it off to meet a sudden change in the weather.

So much for the winter. It is easier to keep warm in winter than cool in summer, so once again Mr. Northcott has the advantage. He admits the unwarmed air into the house, and the temperature drops to a coolness which would make a log fire welcome, no matter how the mercury soars outside.

Water—Its Properties and Practical Uses

The Plumber and Fitter Often Wants to Know WHY Certain Methods Are Used. Nature's Methods Are Worth Careful Study

By F. W. TOWER

Introduction.

It has been said "There is no new thing under the sun."

In considering the topics pertaining to the subject of Plumbing there is nothing new, but a statement of facts may be the means of refreshing our memories or giving us a new insight into old principles practically applied in the later methods of installation.

The principal feature of a trade must be based upon the knowledge of the underlying facts that govern the practical installation of the materials.

The reason *why* a certain thing is done in the way it is, and why it is right, is most important.

When you know you are right then go ahead regardless of criticism.

Knowledge and acquired skill are required in this trade perhaps more than in many others, owing to its close connection with the public health.

It is the aim of these papers to so state facts about water and its properties, air and its action in drainage and ventilation, with the proper installation of the various fixtures, as to be of practical assistance to all especially interested in the Plumbing industry.

Physical Characteristics of Water.

Mechanics is that science which treats of the action of forces on bodies.

The term mechanics includes the action of forces on all bodies, whether solid, liquid or gaseous.

The mechanics of fluids in motion, with special reference to the methods of obtaining from them useful results, constitutes *hydraulics*.

Hydrostatics treats of liquids at rest under the action of forces.

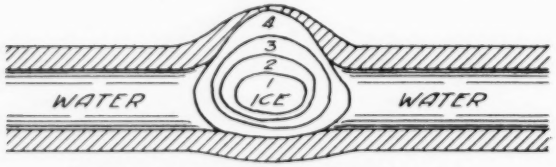
Energy is a term used to express *the ability of an agent to do work*.

Liquids are very nearly incompressible, that is, cannot be contracted into a smaller space than they originally occupied.

Water is such a liquid.

Water is composed of two volumes of Hydrogen and one volume of Oxygen and is often written or symbolized as H_2O.

Water is 770 times denser or heavier than the atmosphere.



Showing How Water Freezes Within a Pipe.

Water at its greatest density is at 39° Fahr. and at this point expands or contracts.

Water freezes or becomes solid at 32° Fahr. and expands, when freezing, with a force of about 30,000 lbs. per square inch.

Water expands about one-eleventh, it also becomes lighter, and this explains why water pipes burst, and explains the rising of the ice to the surface of ponds, etc.

Water, below 32° Fahr. or Ice contracts in volume.

This contraction releases the ice from the sides of the pipe, allowing the water still in a liquid state to work its way into the space. This freezes, again expands and continues until the pipe cannot bear or resist the strain.

This is illustrated in the drawing.

The first contraction, No. 1, is rapidly followed in the expansion at No. 4, which is the last strain the pipes will bear.

When the pipe is thawed the leak shows.

Water boils at 212° Fahr. at sea level and is termed gaseous at the point at which stream is formed or vaporizes.

A given bulk of water is converted into about 1,600 times its volume, in steam, at the boiling point, 212° or *one* atmosphere.

A gallon of water weighs 8.33 lbs.

A gallon of water contains 231 cubic inches.

A cubic foot of water weighs 62.32 lbs.

A cubic foot of water contains 7.476 gals.

The pressure due to the weight of a liquid may be *downwards, upwards,* or *sideways.*

Downward pressure, on the bottom of a vessel, is equal to the weight of water it contains.

The pressure on the bottom of a vessel, due to the weight of the liquid, is dependent *only* upon the *height* of the liquid, not upon the shape of the vessel containing it.

This principle is explained in the saying, "Water seeks its level."

This principle explains why city water reservoirs are located on high elevations, and why water on leaving the pipes spouts so high.

If there were no resistance by friction and air, the water would spout or rise to a height equal to the level of the water in the reservoirs.

If, a long pipe, equal to the vertical distance or level with the source, was installed, the water would just reach the end of the pipe.

If the pipe was lowered slightly, the water would trickle out.

Fountains, canal locks, and artesian wells are examples of the application of this principle.

The pressure head at any point is less than that due to the hydrostatic head.

A water column 12 inches high exerts a downward pressure of 0.434 lbs. per square inch.

Usually called one-half pound per foot.

A water column 2.31 feet high equals *one* pound pressure at its base, *or*

A water column 27.71 inches high equals *one* pound pressure per square inch at its base.

Vertical height determines head or pressure.

Thus in soil pipe stacks, holding water when testing, the weight of water is less as the top of the column is reached, as per sketch.

The *upward pressure,* or *buoyancy,* exceeds the downward pressure by the weight of a volume of water equal to the volume of the body.

This is the first of a series of practical articles by F. W. Tower, dealing with the natural laws that apply to plumbing and steamfitting trades.

This excess of *upward* pressure over the *downward* pressure acts against gravity, that is, the water presses a body *up* with a greater force than it presses it *down*.

Consequently, if a body is immersed in a fluid, it will lose in weight an amount equal to the weight of the fluid it displaces.

Lateral or *Sideways pressure*, means radiating in all directions.

The law governing the pressure of liquids is as follows:

"Pressure exerted by a liquid is conveyed in all directions, and acts with the same force on all equal surfaces, and at right angles to those surfaces."

The rule for getting lateral pressure is as follows:

"Get the area of the sides of the vessel, multiply this result by one-half the depth, and this amount by 62.32 pounds, the weight of a cubic foot."

Example: Tank 4 feet deep, 2 feet wide and 5 feet long.

Solution: To get area multiply the depth, 4 feet, by the width, 2 feet, by the length, 5 feet, 4x2x5 equals 40 feet by 2 feet, (half the depth) equals 80 cubic feet by 62.32 pounds, (the weight of a cubic foot) equals 4985.60 pounds, the total radiating pressure.

Specific Gravity is the relative weight of a ponderable substance, compared with another, which is taken as a standard.

Water is the standard for solids.

Air is the standard for gases.

The specific gravity of a body is found by weighing the body in air, then in water.

Subtract the weight in water from the weight in air, and divide the weight in air by the difference.

The quotient is the specific gravity.

Water is called *hard* when charged with foreign matter and will not readily dissolve substances immersed in it, as soap.

Water is made hard by impurities taken from the soil, such as sulphate of lime, etc.

Rain water is termed *soft*, because it is *not* impregnated with the salts of the earth.

Distilled water is termed *soft*, because all impurities are removed by condensation.

Solvent Action of Water.

A body is said to dissolve when it becomes liquid in consequence of an attraction between its molecules and those of a liquid.

Gum arabic, sugar and most salts dissolve in water.

The weight dissolved usually increases with the temperature.

When a liquid has dissolved as much as it can at a particular temperature, it is said to be saturated.

Water rapidly corrodes iron, forming oxides, some of which are soluble in water.

Water thus contaminated is not poisonous in small quantities, but is unfit for use because of its discolorations.

Water will also corrode lead, brass and zinc and form compounds which are very poisonous.

Unfortunately the presence of these poisons in water cannot be detected by color, but by taste or chemical test.

Water that can be used for domestic purposes is not affected by tin.

The water which exists in common soil is usually mixed with a small percentage of vegetable and mineral acids, which originates in the decomposition of leaves, etc., upon the surface, and it is very destructive to metal pipes that are laid undeground unless they are coated with some protective covering.

The solvent action of water increases both with heat and pressure, although heat will sometimes change the character of the water, thus reducing its solvent action.

Steam is very destructive to lead pipe, but harmless to brass or iron pipes, unless it be mixed with air.

Lead and zinc, when exposed to water, form a coating upon their surfaces which usually protects them from further corrosion.

Hot water, when pure and free from gases or air, will not attack pipes of iron, brass, or lead, to an extent sufficient to poison the water or render it unfit for cooking purposes, unless allowed to stand for a few hours before being drawn.

Water is said to be saturated when it has in solution all the gas it can hold.

Water under pressure, saturated with air, allowed to flow from a faucet, will appear milky, air being liberated in a great number of air bubbles.

At atmospheric pressure, it is said that water will absorb four per cent of its bulk in air.

With a high pressure the water will absorb more of the air.

This explains why air chambers on some jobs become inoperative and may be remedied by installing air cocks.

A lower pressure usually exists at the end of a line of piping, or in the vicinity of faucets, while water is flowing from them, than at the street main.

This reduction of pressure, if the water is saturated, will liberate more or less air.

(To be Continued.)

FARM SANITATION IN NEBRASKA.

The Nebraska Board of Agriculture thinks the farmers of Nebraska have better than the average health. It is proud of the fact. It says:

"It should be our purpose, therefore, to lead other states to become as healthy as possible, knowing that human health and life are the states' greatest resources. Let the ideal be the development of the largest possible number of healthy persons capable of rendering efficient service physically and otherwise and fit to bear the new generation. Viewed in the light of conservation, bad health is not a resource but the opposite; good health, the normal condition, is always at a premium."

About half of Nebraska has been mapped, showing the well water conditions. Studies have been made which show the underground water strata of the state. We learn that underground water in that state is in three strata separated by beds of clay. The water in the first stratum is usually too hard and is frequently polluted; therefore, Prof. Condra advises that wells be driven to the second or even third stratum. The well waters Condra has found better than stream and lake supplies. The generally given advice to dig the well on the higest spot on the farm is not good advice on the farms in the Republican and Niobrar valleys, as water is inaccessible at such points.

On the subject of wells, Condra advises:

1. No source of very bad pollution, such as stables, manure piles, and privies, should be within fifty feet of a well, or that no well be dug within fifty feet of such sources of pollution.

2. Wherever the location of the underground water will allow, the well should be placed on the highest ground on the farm.

3. The ground should be banked up around the well so that the run-off is away from the well.

4. The well should be covered so thoroughly that mice, rats, and domestic animals and fowl cannot fall in.

5. The well should be cleaned out often enough to keep the water pure and wholesome. The taste of well water is not a good criterion by which to judge whether or not it is wholesome.

Through the Safety Valve

By H. E. S.

"When I was a young-un," said plumber "Bill,"
Lighting his pipe and puffing away,
"I took quite natural' to sellin', until
The new sellin'-system come into sway.

"The idea then, was to make 'em buy
The things you told 'em they should,
And as business was biz you'd usually try
To unload any junk that you could.

"But now the tables are turned about,
'Stead of sellin', they help us to buy.
Gosh! I'm lucky my sign wasn't out
When I was a sellin' guy!"

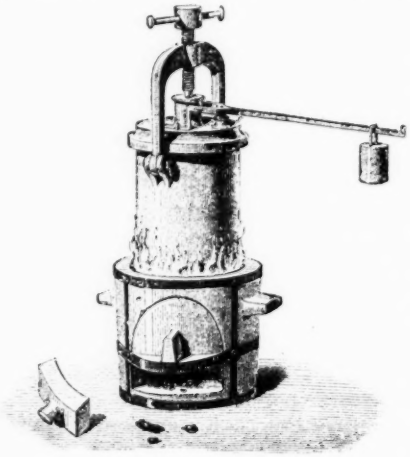
The local manager for one of those boiler concerns that is "snowed under" a terrible blizzard of orders, says that folks ought to take "human frailities" into consideration before they publicly denounce him and his company for not delivering goods on the dot. He says he can't help it when the packers at the plant get tired and quit work, or when the head forwarder gets discouraged and goes off on a protracted toot, and when even he is afraid to go looking him up for fear he'll get discouraged too.

Now that is a perfectly frank and straightforward defense that should find lodgment in sympathetic ears. If that's the way things stand it's lots harder on the managers than it is for the fellows who have to wait a few weeks for boilers.

We had thought, in selecting a heading for this column, that most everybody would catch its significance, provided we lucidly set forth under it such fizzings and vaporings of the mind as are sometimes an antidote for the notion that there isn't anything in the world but business, and that being satisfied with whatever relief it afforded from the high pressure of all the other columns everybody would show their appreciation by accepting it simply as it was intended and without critical comment. Indeed, viewing it fondly, as we often do, we cannot but think that it is a most fitting title. In itself it is an inspiration. It invites us to blow with all the lustiness of an unhampered imagination; it warns everybody that our blowing is likely to make lots of noise, but not to mind because the exhaust is into the open air and can hurt nobody, and it also presents a guarantee that our blowing will never be overdone because if we show any weakness in that direction the editor has merely to put more tension on the spring and shut us off.

In spite of all these advantages one critical (and in our opinion, captious) reader has been nosing around in some musty encyclopedia and he now comes forward to accuse us of selecting a title that permits us to drag in a lot of "dried boxes." Probably he wanted to say "old saws," "bromides," "lemons," etc., but he seeks to pose benevolently as "a friendly critic" merely calling attention to our lack of discrimination. Of course that is just a foxy dodge to rob us of the pleasure of getting mad or even of feeling hurt and indulging in a silent dignified manner.

He says that the safety valve was invented long before anybody thought of using steam for power or for heating purposes, and that a Frenchman named Papin (sounds like a chef to us) was the man who gave it to the world in 1780 or thereabouts. Papin, it seems, had been experimenting with steam for some years and his safety valve was part of a steam apparatus which he brought out in the year aforesaid, and known as "Papin's Bone Digester," for "softening animal bones for cookery, confectionery, chemistry and dyeing." Papin had to have the safety valve because it took high pressure steam to get those animal bones into a state of pliancy for food.



The First Safety Valve, by Papin.

Well, there you have it! Benevolent friend says we chose our heading so that we could "drag in dried bones" and get away with them after a softening process. Oh, well, heigh-ho! Maybe we did.

"Seems as how its sort o' temptin' fate to be takin' up with all these new fangled ideas and fergetin' most of the old uns," says farmer Sykes. "Jake Sweet said thar warn't nothin' scientific bout lightenin'-rods so he took his'n down, but after he'd put in his new hot-water heatin' outfit, the lightenin' struck Jakes chimney an now Jake and the family are settin' round the kitchen stove evenin'."

What's become of those genial gladiators of genius who used to break into the scientific columns with pro and con dope on boiler rating?

Yes, "wide awake reader," we noticed that our Thanksgiving pome wasn't quite as wel' done as our turkey of same date. Writing pomes is of course mere child's play with us, but reading our writing is quite another matter; —say the compositors.

T. J. Douglas justly famous nimrod, and otherwise heating contractor in Chicago, Ill., says the "Spectator" spun a pretty plausible yarn in the week before last number, but that he made a mistake which should be rectified. He says his name isn't "Bill"—its "Tom."

A Sail! A Sail!

We heard last week of a plumber who was installing a vacuum cleaning plant.

Questions and Answers

HOW TO FIGURE RADIATION.

Editor, "Domestic Engineering":—Will you kindly give in your next issue, the best rule for figuring radiation.

New York City. Apprentice.

The simplest and best method of estimating radiation that we know of is what is called the 2-20-200 rule, which is as follows:

For each 200 cubic feet of space in the room to be heated, allow 1 square foot of radiation; for each 20 square feet of exposed wall surface in the room, allow 1 square foot of radiation, and for each two square feet of glass in doors and windows of the room, also allow 1 square foot of radiation.

The above is the method of estimating steam radiation. To estimate hot water radiation, proceed as if estimating for steam, and to the total amount add 60 per cent.

We give the above not as absolutely correct under all conditions, for anyone who is acquainted with the practical side of heating, well knows that no two jobs are alike, and that it is always necessary to use one's best judgment, taking into account the special conditions that surround each job.

A RANGE BOILER INSTALLATION THAT FAILED.

Editor, "Domestic Engineering":—Some time ago I had to connect a range and boiler, where the boiler was in one room and the range in the next room to it. I connected the job according to the sketch which I am

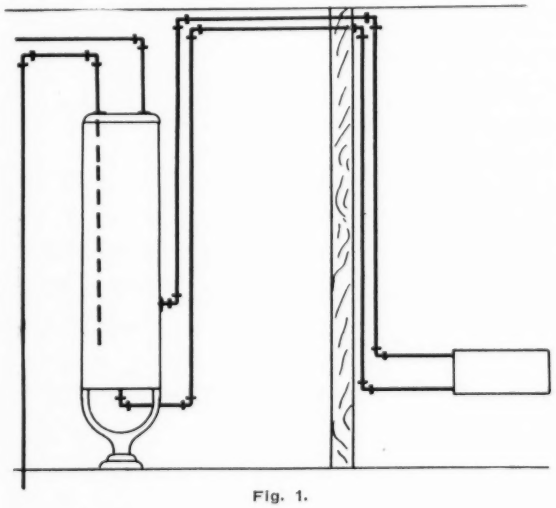


Fig. 1.

sending you, as I could not think of any better way. The job is a failure, and I wish you would tell me what to do.

Portland, Me. Reader.

Our advice to "Reader" is to get the boiler and range into one room if possible, but we presume this cannot be done, or he would have done so.

In Fig. 1 is shown the sketch submitted by "Reader," and it is clear that hot water will not travel from range to boiler by any such unnatural path as has been provided for it. "Reader" does not say so, but we know that there must be very serious results, and that the hot water must rumble and pound badly.

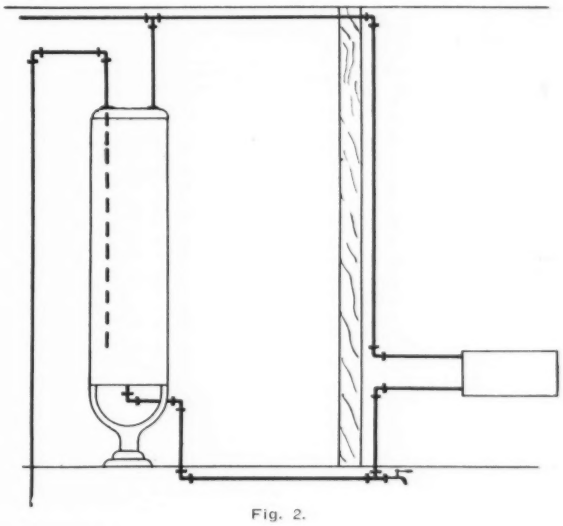


Fig. 2.

There is only one way out of the trouble that we can see, and we show the method that we have in mind, in Fig. 2.

If this course is followed, the job should work very satisfactorily, for then, the hot water will rise throughout its course to the boiler, and this is always necessary in range boiler work. The return connection is very simple and needs no explanation.

PROPER CEMENT FOR MENDING WASH-TRAYS.

Editor, "Domestic Engineering":—Can you give me any information about a cement that can be used for mending wash-trays? Of course, the cement would have to be one that water would not affect.

Wilmington, Del. Subscriber.

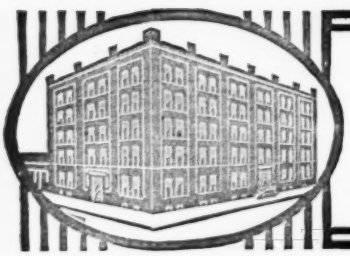
We believe that there is no better cement for this purpose than one made of glycerine and litherage, two substances easily obtainable. Mix the two ingredients into a paste, and apply to the part that is broken. After the cement has set, it will not only be hard enough for the purpose for which it is used, but it will be unaffected by water.

In New York.

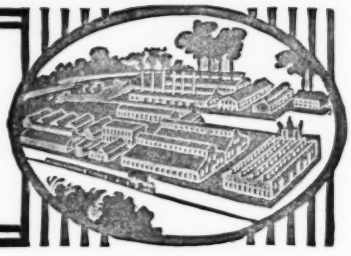
When Pat McKenna lost his watch he went right down to his friend, the police sergeant. "Don't worry about your watch," said the sergeant; "we'll leave no stone unturned in New York until we find it."

Pat returned home greatly comforted, only to find his watch under his vest. As he was going back to tell his friend that he need not trouble to look any more he saw men digging in the street to lay a sewer. Pat rushed up to the foreman. "Nivver mind turnin' up the stones any more," he cried. "I've found it."

Be on the lookout for our New Year's Number. It will reach you two weeks from today.



News of Interest Among the Wholesalers and Manufacturers



FALL MEETING OF EXECUTIVE COMMITTEE OF N. P. AND S. A.

At the fall meeting of the executive committee and advisory board of the National Pipe and Supplies Association, which has just been held in the general offices of the association, in Pittsburgh, Pa., it was decided that the annual meeting should be held next year in Chicago, and that the dates would be April 14 and 15, 1913.

Concerning the meeting in Pittsburgh, General Secretary George D. McIlvaine issued the following official statement:

"The work of the association since June 1st was reviewed and new lines laid down to be developed and worked out during the winter months. The association was found to be in a sound condition financially and otherwise, with an increased membership.

"The kindly consideration given by manufacturers to suggestions by the association have been noticeable, and were favorably commented upon at this meeting. It is found that the manufacturers realize the necessity of a strong national organization of this character, and they are lending it encouragement in every way possible."

Concerning the annual meeting, Mr. McIlvaine declares that the hotel at which the convention would be held had not been selected at this time, but a decision would be arrived at within a few weeks. This and other details concerning the coming meeting will be given in full in "Domestic Engineering."

Those attending the Pittsburgh conferences were: President J. P. Hartnett, of the L. M. Rumsey Manufacturing Co., St. Louis, Mo.; first vice-president, A. L. Scott, of the Pacific Hardware & Steel Co., San Francisco; second vice-president, Oscar J. Saxe, of the Dalton-Ingersoll Manufacturing Co., Boston, Mass.; treasurer, C. G. Cornell, jr., of the Cornell & Underwood Co., New York; F. M. Sheldon, Braman, Dow & Co., Boston; A. A. Merkel, The Merkel Bros. Co., Cincinnati; W. M. Pattison, W. M. Pattison Supply Co., Cleveland; W. T. Todd, Somers, Fitler & Todd, Pittsburgh; Geo V. Denny, Georgia Supply Co., Savannah; J. B. Rahm, United States Supply Co., Omaha; Geo. H. Bailey, Bailey-Farrell Mfg. Co., Pittsburgh; A. A. Tomlinson, Virginia-Carolina Supply Co., Norfolk.

THE J. E. EICHMAN MFG. CO. BUYS LARGE PROPERTY IN BALTIMORE.

The J. E. Eichman Mfg. Co., of Baltimore, Md., manufacturer of plumbing goods, has purchased the property it at present occupies, together with additional ground, bounded by Bush, Wicomico and Sassafras Streets in that city. The improvements consist of a two-story brick building, fronting 40 feet on Bush Street by 100 feet on Wicomico Street; a one-story building, 236 feet 9 inches on Bush Street by 100 feet on Sassafras Street, also boiler house and dry kilns. The additional ground is 276 feet 9 inches by 100 feet and adjoins the present property, which is improved with a railroad siding. This now gives the company over one acre of ground, and the president, Mr. Eichman, states that the purchase was made in order that they could erect a brass foundry and finishing shop, some of the machinery having already been purchased.

WILL MANUFACTURE PLUMBING SPECIALTIES.

The Aseptic Service Co., of South Berwick, Me., has been incorporated with a capital of $50,000 to manufacture plumbing specialties. The officers of the company are: Milton B. Davis, president; Fred A. Hobbs, secretary and treasurer; both of South Berwick, Me.

C. S. BERRY IN CHARGE OF ATLANTA OFFICE.

The H. W. Johns-Manville Co., of New York City, announces the appointment of C. S. Berry as manager of its office at 31½ South Broad Street, Atlanta, Ga., to facilitate delivery in the South. A stock of the company's products is carried at this address.

THE CENTRAL CLOSET MFG. CO. INCREASES CAPITAL STOCK.

The Central Closet Mfg. Co., of Kokomo, Ind., has increased its capital stock from $75,000 to $125,000. General Manager George Harper states that the material increase in the company's business during the last year made this more necessary.

THE CHICAGO SAFETY APPLIANCE COMPANY.

The Chicago Safety Appliance Co. has been organized with offices in the Peoples Gas Light Building, Chicago. The officers of the new company are: L. B. Jenks, president; H. B. Shreve, vice-president; F. A. Lathrop, treasurer; and S. O. Dugger, secretary; all well known to the Chicago plumbing trade.

WILL MANUFACTURE PORCELAIN PLUMBING FIXTURES.

The Western States Porcelain Products Co., whose plant is located between Richmond and San Pablo, Cal., is preparing to erect another unit to its present factory and this building will be devoted to the manufacture of porcelain bathtubs, lavatories and other sanitary goods. The structure will occupy a ground space of 50 by 180 feet and will contain two large brick kilns for baking porcelain. The building and equipment will represent an outlay of about $50,000. Mr. Platts is the manager of the concern. The first unit of the plant is devoted to the making of porcelain electrical supplies.

PLANNING TO BUY WHITLOCK COIL PIPE CO'S. PLANT.

The New Departure Manufacturing Company, of Bristol, Conn., has made a proposition to the directors of the Whitlock Coil Pipe Co., of Hartford, Conn., for the purchase of this company's plant at Elmwood. The negotiations are still pending, but it is expected that the transaction will take place in the near future.

NEW OFFICERS OF THE MASSACHUSETTS CHAPTER OF A. S. H. & V. E.

The Massachusetts Chapter of the American Society of Heating and Ventilating Engineers at its recent annual meeting elected the following officers for the ensuing year: President, Frank Irving Cooper; vice-president, H. W. Whitten; secretary, J. W. H. Myrick; treasurer, William T. Smallman; board of governors: Capt. Joseph A. Moore, D. S. Boyden and William G. Snow. William N. McKenna, a new member of the parent society, has been admitted to membership in the Chapter.

WILL TRY TO RAISE THE STANDARD OF HEATING IN PUBLIC BUILDINGS.

The Indiana Heating and Ventilating Association has been incorporated under the laws of Indiana for the purpose of improving sanitary conditions in public buildings by encouraging the proper installation of heating and ventilating systems of the highest standard of proved efficiency and for the promotion of the general welfare by raising the standard of heating and ventilating systems. Anyone interested in the question of public heating may become a member. The incorporators are Joseph Lige, Auburn, Ind.; L. W. Hammond, Cincinnati; Stephen D. Bryer, Bluffton, Ind.; Jesse W. Johnson, Indianapolis; Earl L. Clevenger, Muncie; Charles B. Clark, Chicago; F. W. Grosclause, Indianapolis; John J. G. Miller, St. Louis.

NEW KEROSENE FIRE POT ADDED TO THE RED-HOT LINE.

The Ashton Mfg. Co., of Newark, N. J., makers of the Red-Hot line of fire pots and torches, are calling the trade's attention to their new No. 59 Kerosene Red-Hot fire pot using kerosene as fuel and to the fact that the stock can be secured through all leading jobbers at factory prices.

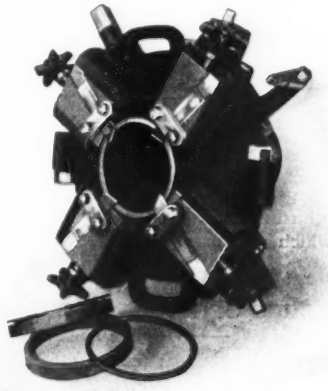
Owing to the demand for a first class kerosene fire pot the makers are said to have spent a large amount of time and money in perfecting a fire pot that can be placed on the market and sold through the legitimate jobbing trade at factory prices under the makers' guarantee.

Kerosene as fuel is less expensive and can be obtained anywhere. The No. 59 Kerosene Red-Hot fire pot produces a perfect blue flame of intense heat and is guaranteed to please and satisfy the user. The tank is made of heavy galvanized iron thoroughly braced with center rod running through from the top of the tank to the base, making it strong and durable and the burner is fitted with needle and packing nut, giving the operator perfect control of his fire pot. Guaranteed to work in wind or weather below zero.

The complete catalogue will be sent upon request by the manufacturers, mentioning "Domestic Engineering."

A NEW TOLEDO HAND PIPE CUTTER.

The Toledo Pipe Threading Machine Co., of Toledo, Ohio, has just recently put on the market an entirely new hand pipe cutter which has a number of advantages

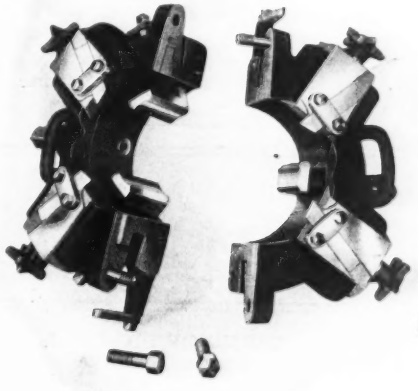


The New "Toledo" Hand Pipe Cutter.

in its manufacture and which is worthy of the attention of the trade.

It is a four knife machine, two of the knives being beveled across the edge and cutting out a V shaped section of the pipe, and the other two knives are square and finish the cut in such a manner that it is impossible for the cutter to bind.

This cutter will handle extra heavy or double extra heavy pipe with equal facility, although, of course, requiring longer to make the cut. The tool is fastened to the



The Two Sections of the "Toledo" Hand Pipe Cutter.

pipe by a three jawed cut, each jaw having the size marks so that the tool centers readily. The rachet handle actuates a pinion operating on the beveled gear. A cut can be made very near the end of a piece of pipe, taking up only 1-16 inch if necessary. A pipe from 2½ to 6 inches in-

clusive is handled on this machine. It will also handle a pipe in a made up line or with fittings on both ends, being split in the middle so that it can be adjusted around a pipe already in place.

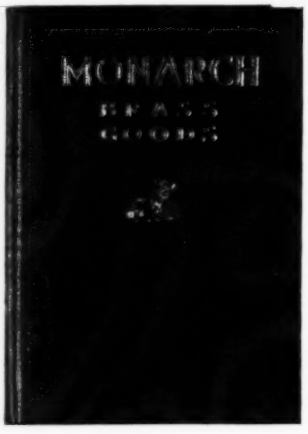
Circulars describing this cutter will be furnished by the manufacturers upon request by mentioning "Domestic Engineering."

MINIATURE SIZE IN GEALY WRENCH.

The Gealy Wrench and Manufacturing Co., Grove City, Pa., has recently gotten out a miniature or model of its large pipe wrenches, and made with the same care, which it has furnished to its salesmen and to the salesmen of the jobbers handling its line. This model weighs eight ounces, and has attracted a great deal of attention among the trade.

A large addition has been made to the factory at Grove City within the past few months, due to the increase in the company's business. A number of new machines have been added, which will more than treble the capacity of the plant.

NEW CATALOGUE OF MONARCH BRASS GOODS.



The Monarch Brass Co., Cleveland, Ohio, recently issued a new catalogue of 142 pages illustrating and describing its complete line of brass goods for the plumber and fitter. Half tone illustrations are used throughout on enamel paper and the book is bound in cloth with a gold sunk title.

The line illustrated includes the Monarch Ground Key Work, Compression Work, Fuller Work, Traps and Miscellaneous Brass Goods, Fittings, etc. A copy of the catalogue will be gladly sent to those who will write the manufacturer the Monarch Brass Co., Cleveland, Ohio, mentioning "Domestic Engineering."

The Metal Market

LESS BUYING OF PIG IRON.

The decline in the price of No. 2 Southern Foundry in the Birmingham market has a most unfavorable influence on prices at other points. Some iron has been sold as low as $13.50 Birmingham. In the central western territory the volume of business seems to be well maintained, although the buying orders are comparatively few in number. In the Buffalo district the reports are more favorable, and the decided increase has been observed in the buying of malleable. In the territory contiguous to New York, the buying is spasmodic, but one Newark consumer is in the market for 1,000 tons for first quarter delivery. Reports from the Cincinnati market are to the effect that the weakness in Birmingham has resulted in a softening of prices there, yet two of the sales agencies, at least, are holding firm at $14. The lower prices of scrap had some effect on the market, but this decline seems to have been temporarily arrested. It may have been occasioned by the open winter which has permitted the gathering of more scrap. Quotations are as follows:

Northern foundry No. 1 New York	$18.50 to $18.75
Northern foundry No. 2X, New York	18.25 to 18.50
Northern foundry No. 2 plain, New York	18.00 to 18.25
Southern foundry, Birmingham No. 2	13.50 to 14.00
Northern foundry No. 2, Chicago	18.00

LEAD.

Prices decline sharply and can now be had at 4.35 cents New York.

COPPER STOCKS INCREASE.

Another increase in stocks of unsold copper took place in November and these are now practically at the same figure as at the end of January, namely 86,000,000 pounds. In the meantime, prices have advanced from around 13 cents to around 18 cents. The principal reason why stocks accumulated so much in the last two months is because of the smaller foreign deliveries. Few sales have been made within the week, but most of the business has been $17.75, New York.

TIN.

The market is steady and consumers buy with considerable confidence. Prices show little change and rule around 50 cents per pound.

OLD METALS.

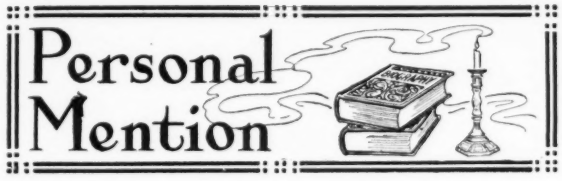
Dealers' buying prices in New York are:

Light copper	$13.25 to $13.75
Strictly crucible copper	15.50 to 15.75
Uncrucibled heavy copper	14.75 to 15.00
Uncrucibled copper wire	14.75 to 15.00
No. 1 machine composition	12.50 to 12.75
No. 1 composition turnings	11.50 to 11.75
New brass clippings	10.25 to 10.50
No. 1 brass turnings	8.50 to 8.75
Cocks and faucets	10.25 to 10.75
Clean red carboxes	11.00 to 11.25
Light brass	7.50 to 7.75
Heavy yellow brass	9.00 to 9.25
Heavy lead	3.75 to 3.90
Tea lead	3.50 to 3.60
Scrap zinc	5.50 to 5.75
No. 1 pewter	33.00 to 34.00
No. 2 pewter	9.50 to 10.50
Close cut solder joints	9.00 to 9.25

He Knew Onc.

"Some adjectives," said the teacher, "are made from nouns, such as dangerous, meaning full of danger; and hazardous, full of hazard. Can any boy give me another example?"

"Yes, sir," replied the fat boy at the end of the form: "pious, full of pie."



John Peath, formerly associated with the United States Sanitary Manufacturing Co., of Pittsburgh, Pa., has been appointed manager of the Detroit branch of the Colwell Lead Co.

C. A. Barker, formerly with the Chicago branch of the United States Radiator Corporation, has become associated with the Kelly Brass Works, 225-231 West Illinois Street, Chicago.

Chas. Wulf, who has been associated with the American Valve Company, of Indianapolis, Ind., since its inception, has been promoted to the position of manager of this company.

Thomas Tait, sanitary engineer and chief draftsman of the Moline Vacuum Vapor Heating Co., of Moline, Ill., was a visitor in Chicago a few days ago. He was here on a recreation trip. Mr. Tait reports brisk business conditions in the plumbing and heating lines at Moline.

David Whiteford, well known as one of the old time master plumbers of Chicago, is rapidly recovering from a severe cold which for a week has dampened his genial spirits and activity.

NATIONAL FEDERATION OF RETAIL MERCHANTS OPPOSES OLDFIELD BILL.

At the annual convention of the National Federation of Retail Merchants, held at St. Louis, Mo., Nov. 21, the following resolutions referring to the abolishment of fixed selling prices of commodities were adopted:

Whereas, Section Two of the so-called Oldfield Bill (H. R. 23417), now on the calendar of the House of Representatives for consideration at the approaching session of Congress, seeks to deprive manufacturers of the right to regulate prices, and

Whereas, the abolishment of fixed prices would be directly in the interest of large aggregations of capital operating through systems of chain stores and mail order houses, which whenever possible, have adopted the practice of advertising articles of known merit and established value at cut rates or below cost for the purpose of creating the impression that their entire stocks are bargains, and

Whereas, in this way the uninformed consuming public is attracted to buy large quantities ot unknown goods at unwarranted cost, and

Whereas, it is not in the public interest that greater opportunity for dishonest methods of doing business should be afforded, and

Whereas, the business welfare of every merchant not in the control of said combinations of capital is thereby threatened;

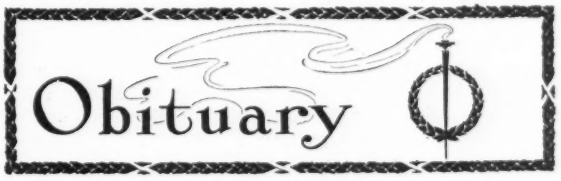
Be it Therefore Resolved, That we earnestly oppose said Section Two of said Oldfield Bill or any legislation which would likewise weaken small dealers and strengthen big business, and be it further

Resolved, That the secretary of this Convention be instructed to send a copy of these resolutions to every member of the United States Senate and House of Representatives, to the President of the United States, and to the President-elect; and be it further

Resolved, That we commend the utterance of President-elect Wilson at Philadelphia, on October 29th last, when in defining his policy he said:

"Safeguard American men against unfair competition, and they will take care of themselves. * * * If you make the processes by which small men are under-sold in particular markets, criminal; if you penalize in the same way those discriminations by which retail dealers are punished, if they deal in the goods of anybody except the big manufacturers; if you see to it that raw materials are sold upon the same terms to everybody; if you see that the closed market for credit is opened up by a very different banking system, then you have freed America, and I for my part am willing to stop there and see who has the best brains"; and we pledge him our earnest support in any effort he may make to enforce the principles of equal rights and equal opportunity to honest dealing with the consuming public.

A lie travels by the Marconi route, while truth goes by slow freight and is often ditched at the first water-tank.—"The Philistine."



John W. Frye.

John W. Frye, a successful master plumber at Lake Bluff, Ill., died at his home in that city on Friday afternoon, November 29th, from heart failure.

William B. Armstrong.

William B. Armstrong, founder of the heating business of W. B. Armstrong Co., at Albany, N. Y., was killed instantly in an automobile accident near that city on Sunday evening, November 24.

Edwin Morton Marshall.

Edwin Morton Marshall, formerly president of the Chicago Heat Regulator Co., of Chicago, died at his home in this city on Saturday, December 7th. Funeral services were held last Tuesday at Strathray, Canada. His widow and a son survive him.

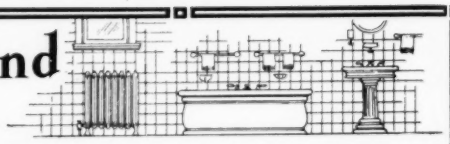
Daniel W. Connors.

Daniel W. Connors, a well known and successful master plumber at Albion, Mich., died at his home in that city on Tuesday, December 3rd, in his 48th year. He was born in Dayton, O., and had lived in Albion since 1896. His wife, a daughter and two grandchildren survive him.

W. H. Chapman.

W. H. Chapman, a master plumber at El Reno, Okla., lost his life recently, when a motorcycle, on which he was riding, collided with a street car in that city. Mr. Chapman was formerly in business at Oklahoma City, and he had many friends both there and in El Reno, who regret his untimely death.

Among the Plumbing and Heating Contractors



CHICAGO AND VICINITY.

The North West Hall, at West North and North Western Avenues, Chicago, was the scene of the annual reception and ball of the North and West Side Master Plumbers' Pleasure Club. This took place on Wednesday evening, December 11th. The Entertainment Committee, composed of George Franklin, chairman; Lewis Nelson; Ernest C. Wagner and President Henry Breyer, ex-officio, is to be complimented in having provided so ably for the many members and guests who attended.

Since the 1st of October the force of plumbing inspectors attached to the sanitary bureau of the Department of Health has been reduced in number by one half—the inspectors having been temporarily separated from their jobs, owing to an economy move on the part of the city administration. The absence of the inspectors, it is said, has delayed plumbing inspection on many buildings, and plumbing contractors are obliged to wait patiently until the inspectors appear on the scene again, which they will after the first of the year—when they will be fully reinstated according to recent information given out at the offices of the Health Department.

The educational work in sanitation carried on during the year by the committee on factories of the Chicago Tuberculosis Institute, is showing results in the early orders for Red Cross seals. Large employers of labor are beginning to realize the advantages of sanitary plumbing and proper ventilation facilities in stamping out consumption and the growth of contagious diseases.

According to official information the pneumonia record for Chicago since December 1911 is as follows:

December 1911	529
January 1912	716
February	692
March	658
April	510
May	400
June	260
July	212
August	172
September	172
October	311
November	365

Pneumonia, it is said, kills more people than any other disease and it reaps it greatest harvest in the wintertime. That is why medical men call it the Winter Plague. Pneumonia is a dirty house disease; it is developed in illy ventilated houses with bad sewage facilities, not in the pure air of outdoors as so many people believe. "You can't contract pneumonia in pure air," says a well known physician of the city. "You can easily contract it in impure air, made so by lack of sanitary plumbing and inadequate ventilation in the house. A closed house is a filthy house—no matter how fine the furnishings may be. The most important things in every home are plenty of pure air through right methods of ventilation and the installation of sanitary plumbing in the toilet rooms."

NEWS FROM MINNEAPOLIS, MINN.

The Western Htg. Co., 13 E. 36th Street, is installing the plumbing and heating in the Steckbauer flats, 25th Street, south, and Emmerson, also in the State Asylum at Anoka, Minn.

J. M. Jacobson, 324 Cedar Avenue, is installing the plumbing and heating in the Lundberg flats on Spruce Street. He also has the plumbing and heating contract for the new South Side swimming pool at 22nd Avenue, south, and Riverside.

H. Kelly & Co., 1029 3rd Street, south, was successful in closing the plumbing and heating in the Nurses' home addition to the City Hospital.

Worthingham & Co., 322 3rd Avenue, South, was awarded the plumbing in the new residence for R. W. Menzer.

Mark Sawyer, 2819 Hennepin Avenue, is installing the plumbing and heating in the new flats at 46th Street and Lake Harriet Boulevard.

A. W. Scott, 215 6th Street, south, was awarded the plumbing contract in the new residence for Mr. Laramore, 4653 South Fremont Street.

Conner Bros., 711 6th Avenue, north, are installing the plumbing and heating in the new 13 apartment house for B. N. Schneider, at 2118 Dupont Avenue, south.

A. M. Winthuser, 2309 Dupont Avenue, south, has added to his delivery force the services of a "Reliance" truck.

NEWS FROM ST. PAUL, MINN.

J. D. Roberts, Gilfillan Block, was awarded the heating contract in a new chapel to be built at West Fourth and Franklin Streets, for Listoe and Wold, undertakers, now located at 322 Wabasha Street. The plumbing contract was secured by Art. Hillstrom.

Geo. McGeary, 163 West Third Street, is doing the remodeling in the heating system in the Germania Life Building at Fourth and Minnesota Streets.

M. J. O'Neil, 60 West Sixth Street, was awarded the plumbing and heating contract in the Administration building for the So. St. Paul Stock Exchange at So. St. Paul. Reed & Stem, Endicott Building, are the architects. Mr. O'Neil is also installing hot water heating plants for J. E. Levitt at 1693 Ashland Avenue, and for A. Hauser at 436 Fairview Avenue.

J. F. McQuillan, 779 Selby Avenue, was the successful bidder on the plumbing and heating in a new residence for Mr. Chas. Whitney of the Whitney-Wilson Company, to be built on Summit Avenue.

Swanson Bros., 504 Capital Bank building, were low bidders on the hot water heating in a new residence at the corner of Laurel and Chatsworth Streets, for Mr. Ackerman. Louis Rozisky was awarded the plumbing and gas fitting.

Swanson Bros. are also busy putting in hot water heating plants for the Whitney-Wilson Company in the following new residences: A frame dwelling at Iglehart and Fisk Streets; 210 Vernon Street; 1200 Randolph Street; 2400 Territorial Road and at Albany and Pascal

Avenues. They are also installing plants for Albin Olson on Ashland Avenue, corner Prior; for Lewis Baer at Thomas and Albert Streets; for A. L. Hauser at Portland and Dunlap Streets; A. J. Erlandson, Lincoln and Hamlin Avenues; J. E. Donlin at Grand and Prior Avenues and in two houses for Jos. Teitz, one at Aurora and Milton Streets and one at Linwood Place and Milton Streets.

Nels Nelson, 1467 Hewitt Avenue, secured the following heating contracts: a frame residence for M. Florin at 1425 Hewitt Avenue; hot water heat for L. Jones at 1360 Hewitt Avenue and for Wm. Johnson at 2130 Rondo Street.

O'Neil Plumbing and Heating Co., 87 East Eighth Street, were awarded the plumbing and heating in Mr. J. Sheldon's residence at 1010 Randolph Street.

NEWS FROM THE PACIFIC COAST.

San Francisco.

The heating, ventilating and plumbing trades do not, of course, expect any rush of business during the holiday season, but the present prospects for much activity early in the new year are especially fine. The city is in a prosperous condition, all things considered, and in the various retail trades preparations are already being made to take care of a big holiday business. In comparison with a year ago, when there were fully fifty thousand idle workmen in San Francisco at this time and a little later, this season is indeed a great improvement. What makes it certain that there will be an unusually early building activity next year is the way building contracts are being arranged for. In November the building contracts amounted to $2,160,045, or over two hundred thousand dollars greater than the preceding month. General confidence in business circles has been fully restored in the past year and as things are going now, the beginning of the new year will most probably bring great prosperity on the Coast. The World's Fair work is progressing steadily and since a month ago several new foreign countries and states have selected sites for their respective buildings. Plans for the huge Machinery Hall, drawn by the architects, Ward & Blohme, are now about ready for figures. This structure will be in the Roman style and will have a length of 900 feet and a width of 360 feet.

The Panama-Pacific Exposition will undoubtedly prove a great stimulus to Coast manufacturing, or at least this is the hope of the people here. With the advantages of the Panama Canal in bringing the world markets of raw materials closer to California, and also affording a cheaper outlet for Coast manufactures, there will no longer be so great a handicap to contend with and many new and branch factories must be established. Already in some lines hitherto manufactured almost exclusively in the East, there is a marked tendency to develop local manufacturing. This is very noticeable in Richmond, Cal., where several concerns are preparing to manufacture all kinds of enamel and porcelain-ware plumbing supplies.

Contractor H. L. Penry has commenced the erection of a brick building, the Bates Block, on Fourth Street, near Macdonald Avenue, Richmond, Cal. The main floor of this building will be fitted up as a plumbing establishment and the upper floor as rooming apartments.

The John G. Sutton Co. has been awarded the contract for the hot water heating system in Officers' quarters Nos. 136 and 137 at Fort Winfield Scott, San Francisco. Amount $2,545. The American Heating & Power Co. was given the contract for installing oil burners in the same buildings. Amount $675.

Engineers Sloan & Robson have just completed the working drawings for a distributing system in connection with water supply of Fullerton, Cal. The work is open for bids.

The Mark-Lally Co. reports business much better this fall than a year ago. The company is at present taking inventory.

Mr. Baker, president of the George H. Tay Co., says that while city business is naturally a little slack on account of the season, the general average for the past month has been very good and indicates a steady improvement in local conditions. The country trade continues quite strong.

J. B. Connor, secretary of the Dairymen's Manufacturing Co., makers of sanitary dairy supplies and equipment, at Jersey City, N. J., is visiting in the city this week.

W. B. Pumphrey, a metal worker of Oakland, has filed a petition in bankruptcy.

James J. Garvin, an enterprising plumber who was formerly associated with the Ruhl-Goodell Co. of Stockton, Cal., is making arrangements to start in business for himself in the near future. He has secured quarters for his business at 325 North Hunter Street, Stockton.

The Bruce Hot Water Circulator Co., with a capital stock of $50,000, has been incorporated at Portland, Ore., by H. L. Bruce, Robert Tucker and J. L. Hartman. The company is to erect a suitable plant and manufacture and sell patent devices for use in hot water heating.

The Highland Plumbing Co. has been organized in Portland, Ore. The company has a capital of $5,000.

NEWS FROM IOWA.

Nevada.—The Nevada Plumbing and Heating Co. is installing fixtures in the Odd Fellow's hall. This concern has had an unusually successful season, and has enough work on hand to keep its force busy for several more weeks.

Ames.—The Ames College is building an addition for accommodation of the engineering students. Contracts for plumbing and heating have not been let up to this writing.

Boone.—T. E. Nelson Plumbing Co., has been awarded a contract at Stratford, for plumbing, heating and lighting.

The Globe Plumbing and Heating Co. was awarded the contract for plumbing in the Boone Nat. Bank building. This concern reports a good season, and has several unfinished contracts on hand.

Perry.—Owing to improvements being made by the Milwaukee road, there has been a big boom in the building line, which has kept the plumbers real busy. The city still finds housing conditions inadequate for the demand made by the large influx of mechanics and their families. There are still a large number of houses under construction.

Henry Miller has moved into his new building. It is one of the most modern in this section. Mr. Miller has had a large number of contracts this season.

Work on the new hotel is progressing rapidly. Bailey and Peppard, Des Moines, were awarded the plumbing contract, which is a good one.

Des Moines.—Thomas Plumbing Co., 612 E. Grand Avenue, was awarded the contract for the remodeled Juvenile Home.

Pray and Comerford report a busy season and have plenty of work ahead. Their show-room is always modernly equipped.

Mr. Knauer, of the Globe Plumbing and Heating Co., who is also secretary of the Master Plumber's Association, of Iowa, is quite a busy man. He has several large contracts on hand and his "golden smile" is always in evidence.

NEWS FROM TEXAS.

Austin—A. E. Hancock & Co. report a good year's business, and at the present time have 15 men at work finishing up a number of good contracts.

Fort Worth.—Fred Robbins, 1131 South Adams Street, has been awarded the contract for the plumbing in residence of Z. C. Ross. This contract includes 15 high-grade fixtures and the price approximates $1,400.

Waco.—E. J. Vance & Co. are just completing the plumbing in the Navigator hotel, 3d and May Streets. This work includes the installation of twenty modern bath rooms, contract amounting to $3,000.

A 250 room modern hotel is being planned for Waco and as soon as a location is secured work will be begun. It is expected that work will be under way by February 1, 1913.

Hillsboro.—Lowell Bros. have been awarded the contract for plumbing and heating in the new 24 room grammar school to be erected here. The contract price for the entire building was about $6,000 and the plumbing, heating and ventilation, $10,000.

NEWS FROM NASHVILLE, TENN.

The approach of the holidays finds the plumbers of Nashville quite busy. There is quite a good deal of new work on residences, schools and business houses, to say nothing of a considerable amount of repair work that always comes from the middle of November on through the rest of the winter. Many new kinds of heating devices are being installed. The outlook is for a good season early in 1913.

T. J. Mooney & Co., 142 Eighth Avenue, report considerable work on hand on out of town plumbing contracts.

H. B. Jordan, 33 Bridge Street, has completed the plumbing work in several schools in Davidson County the last few weeks. He reports a good deal of work on hand for plumbing of residences and apartment houses.

N. S. Jonte, 112 Fourth Avenue, North, recently put in a lot of plumbing work for the Tennessee State Fair Association at Cumberland Park. He has a number of contracts on hand for the New Year.

Pink Lawrence, of Herbrick & Lawrence, left this week for Richmond, Va., taking with him a gang of men to do several lines of work on a theater there.

John Bouchard & Sons Co. has been installing some work for the Emmerson-Brantingham Co., on Demonbreum Street. They have the contract, also, for installing a heating system and doing the steam heating work on the new Bruton-Weyman Snuff Company's building in North Nashville.

The Stephens Plumbing Co. has recently opened a new establishment at Jackson, Tenn.

Cockrill Bros., Jackson, Tenn., are doing the plumbing work on the new city hall at Jackson.

Lannon & Johnson Co., Humbolt, Tenn., are installing a hot water heating system in the Griffin residence; the steam heating plant in the city hall; a hot water heating job for Senator Thos. J. Walsh, all of that town. Also a hot water heating job in the residence of Robert M. Bond, Bronsville, Tenn.

Lew Tisdale & Co., 42nd Street, Memphis, have the contract for installing the plumbing in a large six story business house for the S. E. Toof Printing Company, to be erected in Memphis in the near future.

The Chickasaw Plumbing Co., Exchange Building, Memphis, has the contract for the plumbing on the new fifteen story Hurt building in Atlanta, Ga.

Pritchard Brothers Co., Memphis, are installing the plumbing and heating in the new buildings of the Raleigh Medical Co., of that city. They also have in hand about twenty residence jobs for the Colonial Trust Company of Memphis.

The Southern Heating Co., Jefferson Avenue, Memphis, completed the installation of a heating system of the Helena High School of Helena, Ark., and are now working on the heating system of the Mercantile Bank of Memphis.

Whittaker & Schabel of Memphis has dissolved, Mr. Whittaker retiring. They have been in the plumbing business for several years.

NEWS FROM LOUISVILLE, KY.

Judging Louisville plumbers and steamfitters by their works these days, as authority says you should do, one would divine that the allied crafts are rendering a great service to the community. The number of big jobs reported testifies to the all-around prosperity of business with Bluegrass domestic engineers. Some plumbers have been more successful than others in securing handsome contracts, of course, but with not a single member of the fraternity is there a serious complaint to be registered. The plentitude of jobbing work is responsible for this. The past week produced the first snow flurries of the season, and it is an accepted fact that the mild temperatures of fall are no longer with us. The sort of weather which puts a plumber's services at a premium may now be counted upon for several months. A gratifying feature is that, notwithstanding the prospect of severe weather during the next quarter, a great deal of new work is under roof and the interior finishers may busy themselves for some time without being embarrassed by unfavorable weather.

J. H. Fleck, 930 Baxter Avenue, reports a most successful season. Mr. Fleck has completed the erection of a store and residence building with his business offices, shop and a complete display room on the ground floor, and the apartments of his family above. The display room is fitted in the most approved style throughout.

Mr. Fleck has plumbing contracts on hand for the following residences: Arthur Dwight Allen, consisting of four baths and individual lavatories in each bed chamber; installing five baths and complete kitchen and toilet equipment, for Frank Fehr; the residence of Fred M. Sackett, five baths and modern equipment; and the home of Mrs. Anna Vissman, three baths, kitchen sinks and water connections. All of these structures are located in the residential section overlooking Cherokee Park.

Jacob Isaacs, 101 E. College Street, has commenced the Plumbing installation in the new home office building of the Great Southern Fire Insurance Company, an eleven-story structure at Fifth Avenue and Walnut Street in this city. The plumbing will include 130 wash-stands, 30 closets, 30 urinals, 10 slop sinks, 12 drinking fountains and all necessary connections.

Mr. Isaacs also has the plumbing contract upon the

I. P. Barnard bachelor apartment building at Second and Chestnut Streets, containing 14 apartments, which will require 14 complete bath-room sets, a number of bedchamber stands and slop sinks.

T. J. Garvey has removed his shop from its former location at 211 East Green Street to new and more commodius quarters on Brook Street between Jefferson and Market.

J. E. Gray, a West End master plumber, has a number of contracts from the Board of Education, for keeping a dozen or so local schools in first-class repair as regards plumbing. The installation of a large number of sanitary drinking fountains in the schools has been superintended by Mr. Gray.

Two good-sized residential jobs have been in the hands of Harry J. Hach, Clay and Broadway, for the past week or so. Mr. Hach has been installing a couple of bathroom sets and complete domestic equipment in the new home of J. A. Fueglein, and has completed new installation and repairs upon the residence of John Smith on Clay Street.

A contract for the plumbing work upon the big addition in the Oertel Brewery on Clay Street, has been closed by M. J. Duffy & Sons, 521 W. Market Street. The Oertel addition will be fully equipped with plumbing suitable for industrial usages. Fifteen fixtures, with water connections, will be installed.

Albert Dott is planning to enlarge the quarters occupied by his plumbing concern at 247 East Market Street in this city, owing to an increase in business.

Meyer & Brenner, architects, with offices in the Keller building, recently awarded a contract to H. C. Degen for the plumbing installation in the residence of Marcus D. Blakemore in Audubon Park.

NEWS FROM CINCINNATI, OHIO.

Contracts have been awarded by architects Robertson & Fahnstock, of the Gerke Building, for the erection of a theatre at 832 West Liberty Street, for the New Liberty Amusement Co. The Gibson-Schlemmer Co., 633 Walnut Street, were the successful bidders on the plumbing.

The William Hillenbrand Co., 2307 W. 8th Avenue, was awarded contract for installing the plumbing in residence to be erected on Holly Avenue, for Mr. Arthur Taylor, as designed by Hall & Borroughs.

In the erection of the new Nordland Plaza theatre, Corryville, it was necessary to remove the building occupied by the Avon Press; however, this firm was fortunate in securing property located several doors south of their present location where they are erecting a building to suit their needs. Oscar Schroeder is the general contractor and Henry Niemes, 4112 Hamilton Avenue, will do the plumbing. Mr. Niemes also secured a contract to do the plumbing in residence being erected by J. P. Simpson, Whittier Street.

C. W. Schofield, architect, with offices at 615 Madison Avenue, Covington, Ky., has completed plans for several buildings to be erected in Silver Grove, Ky., for Mr. J. D. Cummings and Mr. P. J. Maloney and has awarded the plumbing contracts to E. C. Kelly, 523 Main Street, Covington, Ky. Mr. Kelley also has the plumbing contract for the W. D. Boyer residence, 1538 Holman Avenue, Covington.

Leo Blaesi, 2606 Eastern Avenue, has the contract for installing the plumbing in a bungalow on Principio Street, for Frank Brokamp.

We are pleased to report that Mr. Thomas Dyer, of the Attlesey-Dyer Co., is again at his desk, after being confined to his home for the past week with a threatened case of pneumonia.

Melor Bros., 2711 Erie Avenue, Hyde Park, were awarded plumbing contract on building being erected for Mrs. E. Terrill.

Dickman & Ortman are erecting a $6,000 residence on Woolper Avenue, Clifton, and have awarded the plumbing contract to J. J. Vogelpohl & Co., 4156 Hamilton Avenue.

Cincinnati.—The county commissioners of this (Hamilton County) will receive bids until January 3, 1913, for extensive improvements in the Ohio National Guard Armory in this city. This work will include plumbing and gas fitting, electrical work, lighting fixtures, etc.

NEWS FROM CLEVELAND, OHIO.

R. E. Greene & Son, 4525 Detroit Avenue, have the plumbing contract for W. C. Fisher, who is building a new residence on Lake Avenue, Lakewood, O.

The Koblitz Plumbing Co., 1305 Prospect Avenue, has recently secured the following contracts: Plumbing in the new apartment of the Edgehill Land Co., consisting of 54 bathrooms, amounting to $28,000; Kinney & Levan building on Euclid Avenue, $20,000; plumbing and heating in the Superior Foundry Co., amounting to $6,000.

Melvin Jones, Lockwood Avenue, East Cleveland, has the heating contract for the Edgehill Land Co.

NEWS FROM OHIO.

Dayton.—Mr. Albert Pretzinger, architect, 1125 Reibold Building, is receiving bids for the construction of the new eleven story office building to be built by the Reibold Estate adjoining the present Reibold Building. As soon as the general contract is awarded, Mr. Pretzinger will ask for bids on the plumbing and heating, which will be let as a separate contract.

Bids will be received until January 23, 1913, by C. J. Schmidt, Clerk of the Board of Education, this city, for the construction of an addition to the Stivers high school building to cost approximately $200,000. Proposals for the plumbing, heating, lighting and ventilating work will be received with bids for the general contract and also separately.

NEWS FROM KALAMAZOO, MICH.

Fred Hotop, a local master plumber and a member of the Kalamazoo Master Plumbers' Association, won a $1,700 automobile last week in a bazaar raffle.

Wheeler-Blaney Co., 223 N. Burdick Street, has some nice contracts under way. Among them are the following: Plumbing, heating and ventilating the Kalamazoo central high school and manual training building, amounting to about $60,000; plumbing and heating in the police station, the state armory, the college dormitory and gymnasium, and in the American hotel, all of this city.

Wilmington, Del.—George B. Ward, for many years located at 1009 Market Street, and one of the most prosperous master plumbers of this city, has built a modern three-story brick building at 905 Orange Street, the lower floor and basement of which will be devoted to his business. This will be modernly equipped in the way of stock rooms and a good display of fixtures will also be installed.

NEWS FROM SYRACUSE, N. Y.

Commissioner Hessler of the Department of Public Safety, has recommended that the contract for the general heating plant at the city hospital be awarded to Edw. Joy Co., in acceptance of its proposal amounting to $12,000.

Syracuse building permits show decrease of $900,000 below the figures of last year.

Thos. E. Gildea, 119 W. Willow Street, has been awarded the contract to do the heating and ventilating work on the New York State Capitol Building. With the Albany Capitol job at $50,000 and $40,000 in smaller work, Mr. Gildea feels quite content with the heating business.

Robt. Dimmer, 917 N. Salina Street, announces business as being fine and has been awarded the following new plumbing jobs: Wm. Baumer Co., Liverpool, N. Y.; plumbing work in eleven new houses; Behler's meat market and building on Manlus St., $15,000; and some small residence work.

The master plumbers association of Syracuse is endeavoring to secure a public comfort station and has set an example by placing one public drinking fountain as a demonstration, showing the need in a city of 150,000 inhabitants. The chamber of commerce is co-operating with the master plumbers and they feel confident of making it go through.

NEWS FROM NEW ENGLAND.

Massachusetts.

Marblehead.—Albert J. Sanford has been awarded the contract to install plumbing, heating and ventilating systems in the police station.

North Grafton.—H. M. Taft of Norwich, Conn., has been awarded the contract for a new heating plant for the St. Andrews Episcopal church in this town. A steam plant will be installed.

Boston.—The master plumbers of Boston have appealed to Mayor John F. Fitzgerald for a hearing upon the question of separating the plumbing contracts from others in city work. The plumbers claim that they are frequent losers by reason of the present policy of including the plumbing contract in the larger contract for the construction of a building, because under that policy the contractor sublets the plumbing contract instead of the city giving it out direct. Frequently, the master plumbers, say, the contractor goes into bankruptcy and the plumber gets nothing or at best is obliged to wait months for his money. This policy they declare is weekly driving good plumbing firms out of business. The mayor told the petitioners that he would refer the matter to the finance commission for investigation.

Lawrence.—The McCabe & Finzel Co., of this city, has been awarded a contract for plumbing in a 25-apartment house being erected on Main Street, Haverhill. It will be a modern building in every way, with steam heating and vacuum cleaners.

Saugus.—The school committee has awarded a contract for installing steam heating apparatus in the laboratories of the high school building to Stone & Underhill, of Boston.

Connecticut.

New Milford.—Frank B. Powers, manager of the New Milford Plumbing Company, has gone to Pittsfield to accept a position in the same line and the local concern is now in charge of T. J. McMahon.

Hartford.—Joseph E. Murray has the contracts for plumbing and gas piping for a dwelling for Charles Bourt on Brown street; and for W. E. Anderson's new house on Arbor Street. He is also installing a furnace in the residence of Charles Wolf on Brown Street.

Bridgeport.—W. P. Kirk Co., is doing the plumbing and metal work on a store and tenement block at the corner of Warren and Austin Streets, for Louis M. Sagal, of New Haven. The contract for the plumbing in a new building on Nichols Street for Rose Malley has been placed with A. E. Roberts. Contractor F. George Nordling has started work on three new apartment houses for himself, on North Avenue, Stratford, and has given the plumbing and furnace heating contracts to Carlson & Benson. Contracts for plumbing and heating two houses at the corner of Park and Maplewood avenues for Ernest Adams have been awarded to Schietinger & Ladwig. The same concern has a contract for plumbing in a house on Willow Street, for Louis Wagner.

Vermont.

Montpelier.—William S. Fleming, a plumber of Brattleboro, has filed a petition in bankruptcy. He has liabilities of $4,718.81 and assets amounting to $500.42 of which $100 is claimed as exempt.

Rutland.—W. W. Ward & Son have been awarded the contract for installing a heating system in the new addition to Burr and Burton Seminary at Manchester, Vt.

New Hampshire.

Littleton.—N. H. Pearce has let a contract to the Richardson & Cameron Company to install a new heating plant at Christwick Inn which it is proposed to open as a winter lodge.

THE ANNUAL MEETING OF THE ALBANY MASTER PLUMBERS' ASSOCIATION.

The annual meeting of the Master Plumbers' Association, of Albany, N. Y., was held at its headquarters, 119 State Street, on Tuesday evening, December 3rd. The meeting was devoted to routine business and the annual reports of officers. State President Frank B. Lasette and State Secretary John J. Hannegan were present making an official visit, and addressed the gathering at length on association topics, which have engaged their attention since they have been in office. A rising vote of thanks was tendered the state officers for their instructive remarks.

President Thomas F. Nolan, who presided at the business session of the local, declined to be a candidate again for the office of president. He said he thought four years' continuous service should satisfy the ambitions of any man. The election resulted in the unanimous choice of the following named gentlemen: President, Albion J. Eckert; vice-president, Wm. H. Branion; recording secretary, James H. Doody; financial secretary, Frank F. Schimpf; treasurer, John E. Dugan; sergeant-at-arms, Joseph O. Stapf. Trustees: Thomas A. O'Malley; Jacob Noord and Hanford C. Whitbeck.

A vote of thanks was extended the retiring officers and the newly elected officers were installed by State President Lasette.

A banquet was held at Keeler's Hotel, following the adjournment of the meeting, over which President Albion J. Eckert presided as toastmaster. Speeches were delivered by State President F. B. Lasette and Secretary John J. Hannegan, as well as by Messrs. H. F. Westcott, John H. Moran, Frank F. Schimpf, John J. Britt, Jacob Noord, W. H. Branion, John E. Dugan, T. E. Kerwin, John Leikim, Joseph O. Stapf, John L. Fitzgerald, James H. Doody

and Wm. H. Wareing. Retiring-President Thomas F. Nolan was pleasantly surprised when Frank F. Schimpf, in concluding his address, presented him with a fine leather hand bag, of goodly dimensions. In addition to Chairman Schimpf, the committee of arrangements, consisted of T. E. Kerwin and J. H. Moran.

WASHINGTON PLUMBING INSPECTORS' SOCIAL SESSION.

The fourth annual social session of the Association of Plumbing Inspectors of the District of Columbia was held on the evening of Saturday, November 30, 1912, beginning at 9 and lasting till sometime past midnight. The meeting took place in the main dining room of the National Hotel, which had been cleared of its tables and presented the appearance of a large hall, just the right size for the 150 men who assembled to enjoy the fine program prepared by the several committees of the organization. Carnations and the official badge formed the especial adornment of each man's lapel. Much credit is due to the committee having in hand the selection of the design of the badge, which was a medium size button of green and white, bearing the inscription of the name of the organization and the year, surrounding the coat of arms, or seal of the District of Columbia. From the button was suspended a double-colored ribbon—yellow and green being the colors of the sanitary and police departments.

This year's meeting was attended by many plumbers, and nearly every manager or a representative of the local supply and jobbing houses. In fact it was a fine mixture, the men who sell the goods, the men who superintend the work of installation, and the men who inspect the work, all meeting together, mixing, forming acquaintances and otherwise getting on a "get-together" basis. The writer, knows of no other occasion throughout the country where this idea has been put into a happier operation.

The program arranged for the evening's entertainment was of a varied nature, including songs, stories, special features, and magic, as well as selections by the orchestra of harp, violin and piano music. A buffet lunch, with liquid refreshment, was being served during the entire evening, and if anyone did not have his appetite satisfied, it was his own fault.

The feature of the evening, however, was a raffle—unexpected—of turkeys, chickens, cigars, and the best of all—a live pig. The pig was captured, after being set loose by James F. Robertson, master plumber of the firm of E. F. Brooks Co., and the prize was a fine one. The pig certainly squealed—and fun reigned supreme for some twenty minutes on its account.

The committees having the affair in charge were: On arrangements: Chairman J. F. Brady, A. R. McGonegal, R. A. O'Brien, M. J. Fennell, M. J. O'Callaghan, Geo. A. Crawford, Wm. A. Sparrow, Wm. H. Marsh, Frank Wall, Jos. D. Moriarty, Frank Lockhead, Samuel Tapp and Wm. B. Wall. On entertainment: Chairman Frank Lockhead, Samuel Tapp, and Jos. D. Moriarty. On badges, A. R. McGonegal and J. F. Brady. On place: Chairman Richard A. O'Brien, A. R. McGonegal and J. F. Brady.

Among those present were: From the Plumbing Department—Inspector of Plumbing A. R. McGonegal, principal assistant inspector Richard A. O'Brien, assistant inspectors M. J. Fennell, William H. Marsh, George A. Crawford, William A. Sparrow, M. J. O'Callaghan, Frank Wall, Joseph D. Moriarty, Frank Lockhead, Samuel Tapp and J. F. Brady; the following master plumbers: P. F. Hannan, James F. Horan, H. R. Eberly, James F. Robertson, C. E. Brookes, James F. Kelly, Edward McDonald, Thomas C. Clarke, Harry T. Woodfield, E. J. McGolrick, M. J. Colbert, James L. Suman, W. Allan Brett, Max A. Beuter, John R. Galloway, J. I. Atchison, Frederick W. Quinter, Samuel Artz, Thomas Humphrey, George F. McAvoy, Wm. N. Ward, jr., Samuel B. Rose, Harry B. Halley, Thomas F. Foley, G. G. Campbell, Frank A. Kerr, Walter D. Nolan, John J. Nolan, Charles J. Lauer, Wm. A. Blake, John A. Keppel, George F. A. Stutz, William Shields, B. D. Gallagher, Leon M. Rose, D. J. Murphy, B. N. Barnard, Wm. McMahon, J. W. Fowler, R. M. Montgomery, Jos. A. Baur, Isadore Freund, C. A. Dorset, Milton Bairstow, John L. Shedd, Harry T. Suit, Frank L. Marsden, E. S. Atchison, A. W. Kaldenbach, H. B. Hilton, John L. Wege, W. E. Suit, Wm. E. Weigel, William Duffy, Thomas J. Gavin, John E. Boyland, Frank Daly, Charles Tilp, G. H. Davis, M. J. Frass, P. T. Niland, William Thomas, C. C. Kibbey, Robert Strobel, William Koch, Wm. W. Koch, Elmon Koch, Joseph Whelan, A. H. Anadale, J. A. Anadale, James S. O'Hagan, Thomas O. May, Norman Pruitt, James Welsh, Wm. J. Mahoney, Wm. E. Bookhultz, Joseph A. High, Paul J. Baur, Joseph J. Burke, W. P. Fowler, jr., John J. McCann, F. T. Roys, Peter C. Schaefer, Paul A. Viereck, Charles T. May, Henry B. Davis, David E. Jenkins, Henry J. Allen, J. E. Granberry, D. A. Murphy, David L. Meyers, Louis Conradis, L. J. Mangan, J. T. O'Brien, John M. Connor, Arthur J. Tholl, L. F. Campbell, E. L. Stock, H. E. Middleton, J. J. Lanahan, John W. Hurley, James T. Frawley, D. H. Stevens, George Mayer, A. Eberly, Frank Vermillion, Henry Storey, E. P. Carlin, and J. O. Frank, as well as Charles I. Putts, chief inspector of plumbing, of Baltimore, Md.

The local supply houses were represented by Messrs. Joseph R. Wheeler, and S. W. Galbraith, of the Pittsburgh Water Heater Co.; John McCubbin, and John K. Heil, of the C. J. McCubbin Co.; Redmon S. Brennan, of the J. L. Mott Iron Works; James A. Messer, of the John Mitchell Co.; E. G. Schaefer and Mr. U. G. Cunningham, of the E. G. Schaefer Co.; Arthur E. Marsh and Ralph W. Lanman, of the John Douglas Co.; H. S. Powell, of the L. Wolff Mfg. Co.; C. T. Ford, for the H. Mueller Mfg. Co.; George E. Walton, of Jenkins Bros.; and George J. Jones, J. A. Graney, C. P. L. Moran, E. Rose, and H. W. Seymour, of the Crane Co.

January 14, 15 and 16, 1913.—Annual convention of the Iowa Master Plumbers' Association, at Sioux City, Ia.

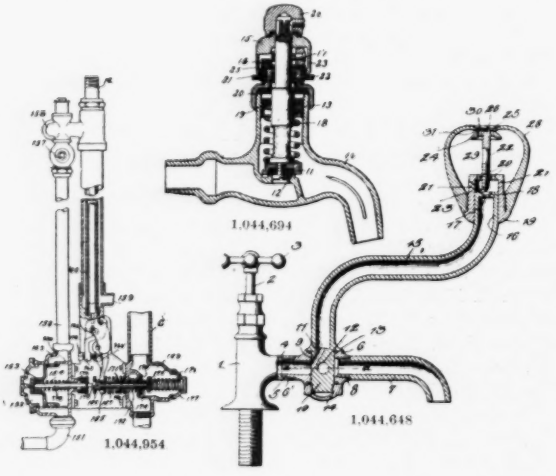
January 28, 29 and 30, 1913.—Annual convention of the Illinois Master Plumbers' Association, at Springfield, Ill.

February 19, 1913.—Annual convention of the Minnesota Master Plumbers' Association at Minneapolis, Minn. The officers of the association are: President, W. W. Hughes, Minneapolis; first vice-president, Louis Neinaber, St. Paul; second vice-president, F. J. Spriggs, St. Paul; treasurer, Arthur Doyle, St. Paul; secretary, S. B. Harvey, Minneapolis. This convention is to be held on the same date as that of the Minnesota Retail Hardware Dealers' Association, and it is the intention in this way to try to interest a number of the country hardware dealers who are also in the plumbing business and who should be members of the Master Plumbers' Association.

Patents

Plumbing Department.

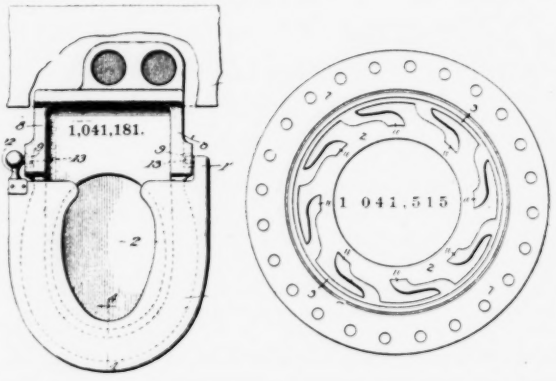
1,044,694. Convertible Self-closing and Compression Cock. Anton C. Schuermann, Decatur, Ill., assignor to H. Mueller Manufacturing Co., Decatur, Ill., a corporation of Illinois. A convertible automatically closing and non-automatically closing cock including a valve, non-automatically operable means for opening and closing the valve, said means comprising a fixed part and a movable operating part connected to the fixed part, said operating part comprising a handle and a connecting member for connecting the handle to the operating part, and a normally inoperative spring associated with the valve to automatically close the same when open when the handle is disconnected from said operating part.



1,044,954. Water-Heater Construction. Frank L. O. Wadsworth, Sewickley, Pa. In combination in an instantaneous water heater, a water actuated means operated by opening and closing the outlet from the heater, a thermostat, a gas valve yieldingly maintained in open position when not acted upon externally, means controlled by said water actuated means for maintaining the gas valve yieldingly in closed position when the outlet from the heater is closed and permitting the gas valve to open when the said outlet is open and the temperature of the water is below a predetermined point, and yielding means controlled by the thermostat for closing the gas valve when the temperature of the water rises above said predetermined point.

1,044,648. Combined Basin-faucet and Drinking-fountain. Foster S. Hamrick, Wausau, Wis. A faucet having a turning plug provided with a tube extending therefrom and for communication with the discharge of the faucet, said tube having a closure at its upper end provided with an opening which also forms a valve seat, a cap on the upper end of said tube and having discharge openings above said closure, a valve screw carried by said cap and movable toward and from the valve seat, and a cup connected to said cap and providing a chamber in which the upper portion of the cap and the valve screw are located, the cup having a depression in its upper side and an opening leading to said depression.

1,041,181. Closet and Seat. Joseph W. Sharp, jr., Philadelphia, Pa. A closet bowl having a stepped portion at its rear comprises a raised tank support 3 and an offset portion 6, a tank 4 resting at its front upon said raised support 3, and a flushing pipe 7 in rear of said portion 3, connecting said tank 4 with the offset 6.



1,041,515. Ball-Joint for Pipes. James A. Rourke, Savannah, Ga. In a ball-and-socket joint for pipes, a socket member having an internal, annular rib constituting a bearing for the ball member, and longitudinal ribs formed on the inside face of the socket and constituting additional bearings for the ball, said longitudinal ribs being curved transversely.

GOVERNMENT CONTRACTS TO BE AWARDED.

Supervising Architect Oscar Wenderoth, Treasury Department, Washington, D. C., will receive sealed proposals as follows:

Until 3 p. m., on January 7, 1913, for the construction complete, (including plumbing, gas piping, heating apparatus, electric conduit and wiring, electric lighting fixtures and approaches), of the United States post office at Abilene, Kansas. The building is one story and basement, with a ground area of approximately 5,000 square feet. Fireproof construction except roof; stone facing; tin roof.

Until 3 p. m., on January 8, 1913, for the construction complete, (including plumbing, gas piping, heating apparatus, electric conduit and wiring, and lighting fixtures), of the annex of the United States post office at Paris, Texas. The building is two stories and basement with a ground area of approximately 7,000 square feet. Fireproof construction; stone facing; tile roof.

Until 3 p. m., on January 17, 1913, for the extension, remodeling, etc., (including plumbing, gas piping, heating apparatus, electric conduits and wiring, and interior lighting fixtures), of the United States post office and court house at Salina, Kansas. The work contemplated is the construction of a three story and basement extension, of approximately 3,600 square feet ground area. The first story and second floor only of fireproof construction; slate and composite roof; exterior facing is of brick and stone; and there will be certain alterations in the present building.

All proposals should be in accordance with drawings and specifications, copies of which may be obtained from custodian of the above sites, or from the Supervising Architect at Washington, D. C.